WHO-EN-C-H1.eps

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| **Sanitation Safety Planning**  **3-day Training**  Step-by-step risk management for safely managed sanitation systems  **Participants Worksheets** |

**Name of participant:**

**Organization:**

**Date:**

**Place:**

**SESSION “INTRODUCTION TO SANITATION SAFETY PLANNING”**

Exercise: Understanding the value of risk assessment and management

You have been assigned as member of an Expert Consultation Group to provide recommendations to the Coppentown SSP Steering Committee. You know that they only have 10 Money Units. Based on the risk assessment, suggest which improvements should be prioritized.

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| **Sanitation step** | **Hazardous event** | **Exposure groups** | **Existing control**  **measures** | **Under current climate scenario** | | **Under the most probable climate scenario: Heavy rainfall and floods** | | **Improvement options** | **Resources required**  **[In Money Units]** | **Indicate with an “x” if it is selected** |
| **Risk assessment**  (L x S = R) | Risk | **Risk assessment**  (L x S = R) | Risk |
| Collection/  Storage/ Treatment | Ingestion of pathogens in wastewater from overflowing toilet or septic tank.  This intensifies due to damaged or blockage following heavy rainfall. | 40,000 individuals using on-site systems | None | L=1 Very unlikely  S=2 Minor  1x2= 2 | Low | L= 2 unlikely  S= 4 Major  2x4= 8 | Medium | Installation of sealed covers for septic tanks and non-return valves on pipes to prevent back flows. | 5 |  |
| Community education on tank maintenance, and on hygiene and safe behaviors during/after extreme events. | 1 |  |
| Monitoring system to control state of household tanks. | 2 |  |
| Disposal | Ingestion of pathogens while in contact with illegal dumped fecal sludge in open drains and open fields adjacent to residential areas. | 100,000 individual living around the illegal dumping areas | None | L= 5 Almost certain  S= 8 Major  5x8= 40 | Very high | L= 5 Almost certain  S= 8 Major  5x8= 40 | Very high | Issuing a municipal decree/by-law for fecal sludge mgmt. | 1 |  |
| Designation of an off-site dumping area for fecal sludge | 1 |  |
| Monitoring and controlling sludge private operators (for instance, through GPS systems). | 3 |  |
| Strengthening enforcement authorities | 3 |  |
| Implement sludge transfer stations for private operators, with intermediate transport to a Fecal Sludge Treatment Plant (dewatering, drying and composting) | 5 |  |
| Treatment  (Wastewater treatment plant) | Ingestion of pathogens while using river water contaminated with discharged untreated wastewater.  This intensifies during extreme rainfall events causing discharge of excess, untreated wastewater into environment. | L4  500 individuals living adjacent to treatment plant.  L6  10,000 individuals living in village downstream | Wastewater treatment plant working ok with minor incidents | L= 3 possible  S=4 Moderate  3x4= 12 | Medium | L= 4 Likely  S= 4 Moderate  4x4= 16 | High | Install flood, inundation and run-off defenses (e.g., dikes) and undertake sound catchment management | 8 |  |
| Invest in early warning systems and emergency response equipment (e.g., mobile pumps stored off-site, non-electricity-based treatment systems) | 5 |  |
| Additional holding pond to buffer high flows and reduce overflow or bypass to river | 6 |  |

**INTRODUCTION TO THESE WORKSHEETS**

These worksheets will be your personal notebook during the entire workshop. You will be able to write down:

* **Information of your SSP case study** to be developed with your group. This will help you to put in practice the learnings from each SSP Module and Step. These notes will help you in the future when you prepare Sanitation Safety Plan.
* **Daily reflections.** That refers to the recommendations on activities that you and your SSP team will have to when you will support the initiation, development, and implementation of SSP in a real locality.

**INFORMATION OF YOUR SSP CASE STUDY**

During this training, you and your team will be preparing a Sanitation Safety Plan (SSP) for a locality. In case you are developing a **SSP for your locality**, you will collect and write down all the needed information to describe the locality as much closed to the reality as possible.

In case you do not have a specific locality, you and your team will describe **a locality that reflects the reality of the areas** in which you *all* work. The locality should fulfill the following conditions:

* The case study doesn’t have to be real; it can be a composite of characteristics of areas in which you all work.
* All members should be able to contribute with their experiences and knowledge, specially while describing the system and conducting the health risk assessment.
* All members should be familiar with the type of sanitation systems selected (sewered, non-sewered, decentralized systems).
* Based on your own experience, you should decide whether it is in a rainy area (with potential flooding) or dry area (with drought). You should also decide what are the climate projections.

It is also possible that your trainer has prepared a **case study** and you will be working with that. Check with your trainer!

**MODULE 1: PREPARING FOR SANITATION SAFETY PLANNING**

**STEP 1.1: Define the SSP area and lead organization**

**What is the name of the locality in which SSP will be developed during the training?**

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In the following lines, describe the locality. Don’t forget to include:

* **Where it is located**. Mention in which part of the country is located, the governance structure in the country (units could be states, provinces, regions, etc.) and indicate to which units the locality belongs to. Indicate the area covered (in km2).

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* **Number of inhabitants**, the number of households, average of people per household, literacy rate, ect.

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* **Main sources of household revenues and average income**, describe also if there is any agriculture activity in the region and type of crops.

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* Indicate clearly what type of **climate change scenario** is projected for the near future.

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* **Prevalence of excreta-related diseases** observed in the community (cholera, diarrhea, dysentery, hepatitis A, typhoid, polio, parasitic worms, etc.).

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* **Main water source and characteristics of the water supply.**

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* **Which lead organization should run the entire SSP process?**

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**STEP 1.2: Assemble the SSP team**

**Which person should be the SSP team leader?**

Remember that the team leader should have the authority, the organizational and interpersonal skills, and sufficient time and management resources to ensure that the process can be implemented effectively (page 13).

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**Which person/organization should be part of the SSP team?**

The usual process is to: (1) do a stakeholder analysis and (2) select team membership to suit the SSP purpose. However, we will only identify key organizations and the type of job position that need to be involved in the. Limit the number of team members to keep the working group functional.

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| **Organization** | **Job title** | **Role in SSP team** |
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**STEP 1.3: Establish SSP priorities**

In case of limited resources, decide if you should prioritize a sanitation system, and which should be.

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**MODULE 2: DESCRIBE THE SANITATION SYSTEM**

**STEP 2.1: Map your system**

You will prepare a sanitation map with your team in a big paper that the facilitator will give you. Remember to include all steps of the sanitation system: toilet, containment-storage/ conveyance/emptying/transport, treatment and disposal/reuse. Use the example 2.1 in page 25 of your manual. Don’t forget to establish the path of different system flows through the sanitation system and give a System Flow Code to each flow (e.g. F1: excreta collected in pits, F2: sludge emptied from pits…).

**STEP 2.2: Characterize system flows**

Use the following table to characterize system flows (for instance, feces, urine, excreta, wastewater, greywater, sludge collected, sludge emptied, dried feces, solid waste dumped in the pit etc.) Read guidance note 2.2 and tool 2.1 for more information. Include all the quantitative information you have and identify if the system flow might have a biological, chemical or/and physical hazards.

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| **System flow code** | **Sanitation step** | **Description of the system flow** | **Key information of the system flow** | **Expected variations** | **Type of potential hazard** |
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**STEP 2.3: Identify exposure groups**

In your maps, identify the exposure groups, using the color cards and the letters U, L, W, WC, F and C are as symbols. You might want to define sub-groups, such as U1: users of latrines, U2: users of flush toilets. Use SSP manual Tool 2.2 on page 32 to characterize the exposure groups. Remember the exposure groups are:

U: Sanitation system users L: Local community W: Sanitation workers

WC: Wider community F: Farmers C: Consumers:

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| --- | --- | --- | --- | --- | --- | --- |
| **Sanitation step** | **Exposure Group ID** | **Who are the exposure groups?** | **How many are there?** | **What are they doing there?** | **What are they exposed to?** | **How often are they exposed to this?** |
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**DAY 1: DAILY REFLECTION**

**Your most important take-home message of today**

Write down what is your most important take-home message of today.

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**STEP 2.4: Gather supporting information**

Write down any information that will affect SSP development and implementation the system. Indicate the source of the information. Use SSP manual guidance Note 2.4 to assist you. Record below:

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| --- | --- |
| **Regulatory requirements** | **Demographics and land use patterns** |
|  |  |
| **System management and performance** | **Changes related to climate and weather** |
|  |  |

**MODULE 3: IDENTIFY HAZARDOUS EVENTS, AND ASSESS EXISTING CONTROL MEASURES AND EXPOSURE RISKS**

In the following table, you and your team will conduct a health risk assessment of the sanitation system you have described in Module 2.

**STEP 3.1: Identify hazards and hazardous events**

When **applying step 3.1**, only complete the columns **Component** and **Hazard identification**. Make sure you describe the hazardous event telling the story of how the hazards cause harm, including the exposure route (ingestion after contact with excreta, ingestion of contaminated water, consumption of contaminated produce, dermal contact, vector-borne, inhalation). Revise the Newtown worked case study, the example 3.2 and guidance note 3.4 for examples).

**STEP 3.2: Identify hazards and hazardous events**

When **applying step 3.2**, only complete the columns related to Existing Controls.

**STEP 3.3: Assess and prioritize the exposure risk**

When **applying step 3.3**, complete the columns related to the risk assessment. Use tools 3.5 and 3.6 of your SSP manual (page 58) for definitions and scores of likelihood, severity and risks. Decide two most likely climate change scenarios and decide with your team if the risk will increase, decrease or will remain the same. Make sure you write in the comments box, the reasons that justify your choice.

| **Component** | **Hazard Identification** | | | | **Existing Control(s)** | | | **Risk Assessment** | | | | | | **Comments justifying risk assessment, under current conditions or climate change scenarios, or effectiveness of the control** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Under current conditions** | | | | **Under the most likely climate change scenarios:**  + means increased risk  - means decreased risk  = means the same risk | |
| L=Likelihood; S=Severity; R=Risk | | | |
| **Sanitation step** | **Hazardous event** | **Hazard** | **Exposure Groups** | **Number of persons at risk** | **Description of existing control** | | **Validation of control** | **L** | **S** | **Score** | **R** | Scenario 1: | Scenario 2: |
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After discussions with your team, write in the following table which are the 3 hazardous events that you will prioritize.

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| --- | --- | --- | --- | --- | --- | --- |
| **Sanitation step** | **Hazardous event** | **Exposure Group** | **Number of persons at risk** | **Risk** | **Projection of changes in risks with climate change scenarios** | **Priority given** |
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**DAY 2: DAILY REFLECTION**

**Your most important take-home message of today**

Write down what is your most important take-home message of today.

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**MODULE 4: DEVELOP AND IMPLEMENT AN INCREMENTAL IMPROVEMENT PLAN**

**STEP 4.1: Consider options to control identified risks**

For each hazardous event prioritized, analyze the possible control measures using the following table:

| **Step of the sanitation service chain:**  **Description of the hazardous event:**  **Exposure group:**  **Improvement options** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Option of new or modified control measures for this hazardous event** | **What is the likely effectiveness of this control measure option?**  (High, medium, low) | **What is the level of resources required?**  (Including financial, human resources, political support: high, medium, low) | **To what extent will this control measure be effective under the most likely climate change scenarios?**  (Effective, ineffective, detrimental) | **Comments/**  **discussion** | **Priority for improvement plan**  (Immediate, short term, medium term, long term) |
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| **Step of the sanitation service chain:**  **Description of the hazardous event:**  **Exposure group:**  **Improvement options** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Option of new or modified control measures for this hazardous event** | **What is the likely effectiveness of this control measure option?**  (High, medium, low) | **What is the level of resources required?**  (Including financial, human resources, political support: high, medium, low) | **To what extent will this control measure be effective under the most likely climate change scenarios?**  (Effective, ineffective, detrimental) | **Comments/**  **discussion** | **Priority for improvement plan**  (Immediate, short term, medium term, long term) |
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| **Step of the sanitation service chain:**  **Description of the hazardous event:**  **Exposure group:**  **Improvement options** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Option of new or modified control measures for this hazardous event** | **What is the likely effectiveness of this control measure option?**  (High, medium, low) | **What is the level of resources required?**  (Including financial, human resources, political support: high, medium, low) | **To what extent will this control measure be effective under the most likely climate change scenarios?**  (Effective, ineffective, detrimental) | **Comments/**  **discussion** | **Priority for improvement plan**  (Immediate, short term, medium term, long term) |
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**STEP 4.2: Develop an incremental improvement plan**

Use the following Gantt Chart to plan the implementation of your improvement measures.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Improvement measure** | **Cost** | **Source of funds** | **Lead organization** | **Year 1** | | | | | | | | | | | | **Year 2** | | | | **Year 3** | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 |
| *Improvement measures to control prioritized hazardous event 1* | | | | | | | | | | | | | | | | | | | | | | | |
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| *Improvement measures to control prioritized hazardous event 2* | | | | | | | | | | | | | | | | | | | | | | | |
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| *Improvement measures to control prioritized hazardous event 3* | | | | | | | | | | | | | | | | | | | | | | | |
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**MODULE 5: Monitor control measures and verify performance**

**STEP 5.1: Define and implement operational monitoring**

For each prioritized hazardous event and their improvement measures, choose 1 improvement measure that should have an operational monitoring plan.

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| **Prioritized hazardous event** | **Sanitation step** | **Choose one control measure that will have a detailed operational monitoring plan** |
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Using the following tables, prepare the operational monitoring plan for the chosen control measures:

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| --- | --- | --- | --- | --- |
| **Operational monitoring plan** | | | | |
| **Operational monitoring plan for:** | |  | | |
| **Operational limits** | **Operational monitoring of the control measure: Control measure:** | | **Corrective action when the operational limit is exceeded** | |
|  | **What is monitored?** |  | **What action is to be taken?** |  |
| **How is it monitored?** |  |
| **Where is it monitored?** |  | **Who takes the action?** |  |
| **Who monitors it?** |  | **When is it taken?** |  |
| **When is it monitored?** |  | **Who needs to be informed of the action?** |  |

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| **Operational monitoring plan** | | | | |
| **Operational monitoring plan for:** | |  | | |
| **Operational limits** | **Operational monitoring of the control measure: Control measure:** | | **Corrective action when the operational limit is exceeded** | |
|  | **What is monitored?** |  | **What action is to be taken?** |  |
| **How is it monitored?** |  |
| **Where is it monitored?** |  | **Who takes the action?** |  |
| **Who monitors it?** |  | **When is it taken?** |  |
| **When is it monitored?** |  | **Who needs to be informed of the action?** |  |

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| **Operational monitoring plan** | | | | |
| **Operational monitoring plan for:** | |  | | |
| **Operational limits** | **Operational monitoring of the control measure: Control measure:** | | **Corrective action when the operational limit is exceeded** | |
|  | **What is monitored?** |  | **What action is to be taken?** |  |
| **How is it monitored?** |  |
| **Where is it monitored?** |  | **Who takes the action?** |  |
| **Who monitors it?** |  | **When is it taken?** |  |
| **When is it monitored?** |  | **Who needs to be informed of the action?** |  |

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**STEP 5.2: Verify system performance**

For each prioritized hazardous event and their improvement, identify the verification plan.

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| **What is the control measure?** | **What is the objective of implementing this control measure?** | **How would you measure it?** | **Verification** | | | | |
| **What indicator will you use?** | **What is the maximum value you will accept?** | **When are you going to measure it?** | **Who will measure it?** | **How will it be measured?** |
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**MODULE 6: DEVELOP SUPPORTING PROGRAMMES AND REVIEW PLANS**

**STEP 6.1: Identify and implement supporting programs**

Write in the box below two supporting programs that should be implemented in the framework of Sanitation Safety planning.

|  |  |  |
| --- | --- | --- |
|  | **Supporting program 1** | **Supporting program 2** |
| **Title of the program** |  |  |
| **Objective of the program** |  |  |
| **Description of the program** |  |  |
| **Key partners to implement the program** |  |  |

**DAY 3: DAILY REFLECTION**

**Your most important take-home message of today**

Write down what is your most important take-home message of today.

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