HEALTH EMERGENCY PREPAREDNESS

**STRATEGIC TOOL FOR ASSESSING RISK (STAR)**

WHO-EN-white-H

**DRAFT Version 3.3.1 (2017/07/27)**

**FACILITATOR GUIDE**

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# Acknowledgements

[Text to be added]

# Strategic risk assessment for health emergency planning

## Introduction

This facilitator guide is one component of the Strategic Tool for Assessing Risk (STAR). The guide accompanies an Excel tool that should be used for the input of data on hazard-based scenarios to calculate an associated level of risk. The STAR toolkit has been prepared to enable countries to apply an evidence-based approach to risk assessments so that processes and outputs are comparable, reproducible and defensible.

## Risk assessment in context

The STAR approach is based on certain key principles:

* **implementation of a risk management cycle,** focusing on assessment and proactive management of high and very high risks, rather than a reactive approach to events as they occur;
* **all-hazards approach,** developing, strengthening and using elements and systems that are common to the management of all hazard types;
* **multisectoral,** recognizing that the various government ministries, private sector entities and civil society have a role to play in risk management;
* **time-based**, basing the assessment on a snapshot of existing capacities and information.

Risk assessments are carried out at different times and for different purposes across the risk management cycle of prevention, preparedness, response and recovery. At different stages of the emergency cycle, different types of health information are used to determine evidence-based action. All types of risk assessment address similar parameters, including:

* identification of the **characteristics of a hazard** and its associated health consequences;
* evaluation of the **exposure of individuals and populations** to likely hazards;
* analysis of the **context, vulnerabilities and coping capacities** associated with the hazard;
* estimation of the **impact** of the hazard and its health consequences.

Strategic risk assessments are undertaken before an event occurs. A strategic risk assessment is used to guide risk-informed programming that will catalyse action to prevent, prepare for and reduce the level of risk associated with a particular hazard and its consequences on health. Actions that stem from a strategic risk assessment can include the prioritization of limited resources, in-depth capacity and vulnerability assessments, development of emergency response and contingency plans, and the implementation of preparedness and risk mitigation activities.

When an event occurs, and in order to inform early warning and response measures, the level of risk posed by the event itself is assessed on a continuous basis through a process of rapid risk assessment. [[1]](#footnote-1) Under the International Health Regulations (IHR) (2005), event risk assessments also include the risk to human health, the risk of international spread of disease, and the risk of interference with international travel or trade.

The appropriate context for the use of the STAR toolkit is before an event occurs, during health sector planning for emergencies. The STAR process can form the initial stage of a disaster vulnerability and risk analysis and mapping (VRAM) process.

The methodology presented in this tool is based on existing guidance on risk assessment from the World Health Organization (WHO) and the Inter-Agency Standing Committee (IASC). It proposes an all-hazards approach, thereby integrating emergency planning for all natural and human-induced hazards.

## Some working definitions

The following definitions should be applied when using the STAR toolkit. These definitions have primarily been derived from the IHR (2005), unless otherwise noted.

**All-hazards:** an approach to the management of the entire spectrum of emergency risks and events based on the recognition that there are common elements in the management of these risks, including in the responses to virtually all emergencies, and that by standardizing a management system to address the common elements, greater capacity is generated along with specific measures to address the unique characteristics of each event.

**Capability:** possessing the demonstrable ability to perform a particular task.

**Confidence:** confidence describes how sure the assessment team is of an estimate. It reflects what some disciplines call the certainty or uncertainty around an estimate.

**Contingency plan:** a plan to deal with particular aspects of a specific threat that is different from other threats.

**Emergency:** an event or threat that produces or has the potential to produce a range of consequences that require urgent, coordinated action. (WHO, *A strategic framework for emergency preparedness*, 2016)

*Comment:* an emergency may have limited consequences in a circumscribed area, or catastrophic consequences on a global scale. The impact of an emergency may exceed the capacity of a community or a state to cope using its own resources, and external assistance may be required. This type of emergency is often termed a **disaster**. Emergencies may pose a substantial risk of significant morbidity or mortality in a community. Emergencies may result from naturally occurring outbreaks; from accidental or intentional release of pathogenic agents; from the consequences of natural and technological hazards such as earthquakes, typhoons, volcanic eruptions, chemical or radiological emergencies; or from societal hazards including violence and conflict.

**Emergency response plan:** a document that describes how an agency or organization will manage its response to emergencies of various types by providing a description of the objectives, policy and concept of operations for the response; and the structure, authorities and responsibilities for a systematic, coordinated and effective response.(WHO, *A strategic framework for emergency preparedness*, 2016)

**Emergency preparedness:** the knowledge, capacities and organizational systems developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent, emerging or current emergencies. (WHO, *A strategic framework for emergency preparedness*, 2016)

**Event:** a manifestation of disease, or an occurrence that creates a potential for disease. (Article 1, IHR (2005)).

**Exposure assessment:** the evaluation of the potential exposures of individuals and populations to the hazards identified in the hazard assessment.

**Hazard:** a potentially damaging physical event, phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption or environmental degradation.

**Health consequence:** the downstream effects that result from a hazard that may be negative or positive. A negative public health consequence causes or contributes to ill health.

**Impact:** the consequences of a hazard, if it occurs.

**Likelihood:** the probability of a hazard occurring.

**Mitigation:** activities designed to reduce or limit risks to persons or property, or to lessen the actual or potential effects or consequences of an incident. Mitigation measures may be implemented prior to, during or after an incident.

**Prevention:** activities and measures taken, based on risk assessments, to avoid existing and new risks.

**Risk:** the combination of the probability of an event and the magnitude of its consequences (or impact), which results from interactions between natural and human-induced hazards, vulnerability, exposure and capacity. (WHO, *A strategic framework for emergency preparedness*, 2016)

**Risk assessment:** the process of determining those risks to be prioritized for risk management by a combination of risk identification, risk analysis and evaluation of risk level. A risk assessment includes a review of the technical characteristics of hazards, analysis of exposures and vulnerability, and evaluation of the effectiveness of existing coping capacities. (WHO, *A strategic framework for emergency preparedness*, 2016)

*Other similar definitions for risk assessment include:* an ongoing systematic process of organizing multiple sources of information within a risk management framework to determine a level of risk to guide decision-making. A risk assessment has two facets: (i) identification and characterization of hazards; (ii) analysis and evaluation of risks associated with exposure to those hazards including vulnerabilities and coping capacities. (Adapted from *Asia Pacific Strategy for Emerging Diseases and Public Health Emergencies (APSED III): advancing implementation of the International Health Regulations (2005),* 2017).

**Risk management**: coordinated activities to direct and control risk in order to minimize potential harm. These activities include risk assessments, implementing risk treatment or response measures, and evaluation, monitoring and review. (WHO, *A strategic framework for emergency preparedness*, 2016)

**Sector:** a division or collective aspect of a geographical area, economy or society.

**Severity:**

**Surge capacity:** the ability to draw on additional resources to sustain operations and increase capacity, usually for emergency response, as required.

**Vulnerability:** a position of relative disadvantage. The characteristics and circumstances of an individual, community, system or asset that make it susceptible to the damaging effects of a hazard.

## Who is STAR for?

The overall purpose of STAR is to identify and prioritize risks to support health emergency planning. The toolkit should be owned by individuals responsible for health sector planning in the context of emergencies.

The STAR toolkit is designed to:

1. engage multisectoral stakeholders around a risk assessment developed for health sector planning;
2. provide a systematic, transparent and evidence-based approach to identify and classify priority hazards by level of risk;
3. for each hazard, to define the level of national preparedness and readiness required to mitigate health consequences.

The outputs of the STAR process will help emergency planners to drive emergency preparedness activities, and to allocate resources to the scenarios that present the highest level of risk.

## What is the scope of STAR?

**Level of use: national level**

The toolkit is primarily designed for use at a national level. If countries seek to roll out the process at a subnational level, there should be close oversight to ensure the consistent use of the toolkit across multiple sites.

**Range of hazards: all-hazards with the potential to cause a public health emergency**

The range of hazards includes natural or human-induced emergencies, potential health events covered under the IHR (2005) (zoonoses, chemical, radio-nuclear, food safety), and events occurring in neighbouring countries or regions. For the purpose of STAR, hazards are classified in Annex 3.

The types of hazards that should not be considered during this process are predictable, endemic hazards that cause stable and known levels of disease, and have well-established disease control programmes in place (e.g. malaria, tuberculosis).

# Implementing the STAR method

## When should STAR be used?

Strategic risk assessments should be conducted at the commencement of the health sector planning cycle for responding to emergencies. Examples of when STAR could be used include:

* ahead of the development or revision of a health emergency plan; **or**
* ahead of multisectoral disaster planning activities; **or**
* as the first step to a more in-depth vulnerability and risk assessment for specific hazards (e.g. VRAM or the Hospital Safety Index); **or**
* before the national planning and review workplan meeting in the ministry of health; **or**
* before resource distribution takes place in the ministry of health.

The first strategic risk assessment a country conducts will represent a significant effort; subsequent assessments will draw significantly from the initial product.

## How often should results be reviewed, updated and shared?

The results of STAR need to be updated and shared regularly. The responsible body needs to establish a routine calendar for updating the results, with multisectoral representation, including:

* routinely on an annual basis; **and**
* routinely before the multisectoral disaster risk assessment occurs; **and**

there are certain ad hoc events that may occur that will also call for the STAR results to be reviewed, for instance:

* after each emergency response; **and**
* after any hazard-specific risk or vulnerability assessment.

After each review, whether routine or ad hoc, it is important to share the results (in a clearly time-stamped format) with all stakeholders including other ministries, partners and those at subnational level.

## How should STAR be used?

For an initial assessment, countries should set aside the equivalent of at least 2 working days for the workshop itself with participants, and 1 day for analysing the results and writing the report. Subsequent assessments may require only half the time.

### BEFORE the workshop

Countries should carefully plan this activity, and several steps should be undertaken by a small **working group (3–5 people)** as soon as the workshop is scheduled. The following tasks will take at least 2 weeks. A checklist of pre-workshop actions for the STAR working group is given in Annex 1.

1. Identify a key individual (**the “facilitator”)** to oversee and facilitate the different steps of the process.

* The identified facilitator must have a full understanding of the tool and enough contextual information on the country to guide the exercise.
* The facilitator will lead the methodology, and drive the assessment process using key sources of information and knowledge.
* The facilitator requires good moderation skills.

1. Identify key technical individuals (**the “participants”**) for the workshop from key sectors. See the section on “How to select STAR workshop participants”.

* Health sector.
* Disaster management.
* Agriculture and animal health.
* Environment.
* Civil defence or security.
* Academia.

1. Collect and analyse available information (**the “data”)**.

* Previously conducted public health risk profiles, vulnerability and risk assessments of the country.
* Previous public health assessments, such as the country capacity assessments, IHR assessments conducted under the IHR (2005) monitoring and evaluation framework (such as Self or Joint External Evaluations, After Action Reviews and simulation exercise reports).
* Health systems assessment information.
* Hospital Safety Index reports, Health Resources Availability Monitoring System (HeRAMs) data.
* Existing emergency preparedness and response plans.
* Reviews and lessons learned documents from previous emergencies – for health sector and overall data.
* Existing generic resources providing risk information, e.g. long-range weather forecasts, population behavioural patterns, traveller statistics, environmental conditions.
* Existing and publically available risk-specific resources e.g. vector transmission mechanisms, land coverage and use patterns.
* Other sources of data on risk and vulnerability (e.g. INFORM, DesInventar).

1. Prepare the data and initial hazard list to be used during the workshop.

* List the relevant data sources used.
* Present a list of hazards that will be the starting point of the workshop.
* For each hazard, present available data for the country.
* Share with participants ahead of the workshop.

### DURING the workshop

The STAR workshop will take place over 2 or 3 full days, and will involve a mix of methods. The workshop agenda should include the following activities (a template agenda is available in Annex 2).

1. **Introduction of the STAR method**

* Presentation of the objectives of the workshop.
* Introduction to risk assessment.
* Presentation of the methodology.

1. **Presentation of the baseline data**

* Description of the datasets used.
* Presentation of the initial hazard list.
* Identification of any missing datasets.

1. **Implementation of the STAR method**

The facilitator uses the Excel tool to collect and codify qualitative data produced during the discussions by participants.

* Step 1: Hazard and exposure
* Step 2: Likelihood
* Step 3: Vulnerability and coping capacity
* Step 4: Risk ranking
* Step 5: Emergency preparedness actions

1. **Determination of next steps**

* Workplan for emergency preparedness actions (including contingency planning, vulnerability and risk mapping for priority hazards, enhanced surveillance, vaccination, risk communication, etc.).
* Planning routine review schedule.
* Sharing of results.
* Use of the STAR results in other processes or assessments e.g. VRAM, capacity assessments, evaluations, etc.

1. **Validation**

* Results of the workshop should be validated by the participants.
* Where necessary, a short period of cross-referencing with official and independent data may be required.

### AFTER the workshop

The purpose of the strategic risk assessment is to inform emergency planning. While the process itself will illuminate the necessary next steps, a structured approach to implementing the preparedness actions will allow actions to be effectively monitored and evaluated.

Some proposed follow-up activities are given below.

1. **Sharing**

* The responsible authority should share a narrative report summarizing the results of the assessment, a detailed register of risks and proposed further actions for strengthening the country level of preparedness (see template for a report in Annex 5).

1. **Additional preparedness measures**

* All hazards that are categorized as **high risk** or **very high risk** should be addressed in a specific **contingency plan** (annexed to the emergency response plan) that sets out the hazard-specific measures required for prevention, preparedness, response and recovery in order to minimize the level of risk (see **“risk mitigation actions”**).
* Certain measures to increase the level of preparedness for moderate risks should also be considered (the **“advanced preparedness actions”**).

Member States should maintain an **all-hazard emergency response plan** that is supplemented by **specific contingency plans for priority hazards**. Each time a strategic risk assessment is completed, its results should be summarized in the emergency response plan.

## How to select STAR workshop participants

In this exercise, including the right individuals and using the correct data are both crucial elements to obtaining an output associated with a high degree of confidence. The STAR workshop should seek to involve **technical staff** and some **key decision-makers** who can ensure that that the results of the risk assessment are used for downstream planning and resource allocation.

The tacit knowledge of specific individuals within the country and its specific context is a key source of information to drive the assessment. In conducting this process, due consideration must be taken to ensure that this tacit knowledge is leveraged effectively. The technical composition should be based on the following competences:

* historical understanding of emergencies and disasters in the country;
* medical and public health expertise;
* historical and current epidemiological knowledge;
* in-depth understanding of the health system and service delivery;
* understanding of emergency response and coping capacity in the country;
* experience in emergency response in the country;
* social, societal and economic knowledge.

In addition to ministry of health officials, this process should include representatives of other relevant ministries (e.g. agriculture, interior/civil protection, national disaster management agency, etc.). WHO and other technical health partners may play a significant role as facilitators and participants. The breadth of participation will also depend on scope and the time devoted to achieving common understanding and consensus, and to what extent the results of this risk assessment might be validated at national level.

## Which data need to be collected ahead of the workshop?

Much information on hazards may already exist at the country level, including a multisectoral risk analysis and mapping, which is normally developed by the national disaster management agency (or its equivalent).

Additional public health and related information should be collected from surveillance data from the ministry of health, and from the ministries of trade, agriculture and environment.

Country-specific information can be combined with neighbouring country information (e.g. that which is available through regional summaries such as the Integrated Disease Surveillance and Response framework for the African Region, APSED III, or country profile reports for the Western Pacific Region).

Documented information that should to be collected and analysed by the *working group* is listed below.

### National data

* Previously conducted public health risk profiles of the country.
* Existing emergency preparedness and response plans.
* VRAM data.
* Health systems assessment and analysis information.
* Hospital Safety Index reports.
* Reviews and lessons learned documents from previous emergencies – for health sector and overall data.
* Existing generic resources providing risk information, e.g. long-range weather forecasts, population behavioural patterns, environmental conditions.
* National and subnational data on current and emerging risks e.g. surveillance data, treatment/equipment/hospital beds/medical emergency vehicles available, vaccination rates, resources available.

### External data

* Previous public health assessments such as country cooperation strategies, IHR (2005) assessments, Global Health Security Agenda (GHSA) assessments, etc.

### Independent assessments

* INFORM Global Risk Index.
* DesInventar Disaster Information Management System.

# How to use the Excel tool

The Excel tool accompanying this guide should be used by the facilitator during the workshop to enter information on the hazards. A user manual for the Excel tool can be found in the first tab of the tool and in the step-by-step guide given here.

## Quantifying the risk of a given hazard

Risk is the combination of the probability of an event and the magnitude of its consequences (or impact), which results from interactions between natural and human-induced hazards, vulnerability, exposure and capacity.

A number of different calculations for risk are used in the public health and disaster management fields to determine an overall score. All these take into account similar variables, and each address the likelihood and impact of the hazard. In this tool, the calculation for the risk associated with the hazard is based on the product of likelihood and impact.

## Step 1: Hazard and exposure

### Identify hazards

List all existing or emerging hazards with the potential to cause a public health emergency. Align these with the agreed subtype levels given in Annex 3.

Then, for steps 1 and 2, address the hazards identified, one at a time, horizontally across each variable to obtain the likelihood level for each hazard.

### Identify possible negative health consequences

For each hazard, identify the possible negative health consequences for the populations at risk.

For example, for a flood hazard, the negative health consequences may include:

* **immediate consequences**: drowning, injuries, animal bites, environmental hazards, trauma, etc.;
* **secondary consequences:** waterborne diseases, vector-borne diseases, mental illness, extended disruption to health services, etc.

For example, for an infectious respiratory hazard, the negative health consequences may include:

* **immediate consequences**: upper respiratory tract infections, severe acute respiratory syndrome, hospital surge, etc.;
* **secondary consequences:** complications of underlying morbidities, disruption of routine health services, etc.

### Define the scale

Describe the **most likely scenario** that would require the **activation of a national response:**

* describe the type and extent of hazard;
* identify geographical areas that are likely to be affected by the health consequences identified;
* describe the population settings (e.g. rural, urban, concentrated/closed, dispersed/open setting).

### Assess exposure

Evaluate the potential exposure of individuals and populations to the hazards identified at the scale identified, by:

* estimating the number of people likely to be exposed to the hazard and its health consequences (i.e. the **“population at risk”**);
* if the hazard is a communicable disease, estimating the number of exposed people at risk of becoming infected by the disease because they are not immune (i.e. the **“susceptible population”**).

## Step 2: Likelihood

### Frequency

For each hazard, define whether the hazard frequency is:

* **perennial:** regular or seasonal events during the year;
* **recurrent:** events occurring every 1–2 years;
* **frequent:** events occurring every 2–5 years;
* **rare:** events occurring every 5–10 years;
* **random:** unpredictable events for which the frequency cannot be determined.

### Seasonality

For each hazard, and as appropriate, identify the months of the year during which the hazard is most likely to occur. For example, a hazard that occurs each year between March and July with a peak every May would be filled in as:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| J | F | M | A | M | J | J | A | S | O | N | D |

### Determination of likelihood

Take into account the historical information on the hazard, the recent trends in the country or subregion, the frequency and the seasonality of each hazard to define the **likelihood the hazard will occur in the next 12 months at the scale defined in Step 1**.

Assign a score from 1 to 5, as follows.

* 1: Very unlikely
* 2: Unlikely
* 3: Likely
* 4: Very likely
* 5: Almost certain

## Step 3: Severity, vulnerability and coping capacity

As for steps 1 and 2, the following assessments should be undertaken for each hazard, one at a time.

### Severity analysis

When conducting the severity assessment for **biological** hazards of an infectious nature, the following information may be required:

* seriousness of consequences (morbidity and mortality);
* transmission potential (mode of transmission and reproductive number R0).

When conducting the severity assessment for **geological,** **hydrometeorological, technological and societal** hazards, the following information will be required:

* seriousness of consequences (morbidity and mortality);
* length of disruption to routine health services.

Simple algorithms, such as those given in Annex 4, can be of use when analysing the severity of each hazard.

*Comment:* the seriousness of the consequences is determined under the IHR (2005) by considering: (i) whether the number of cases and/or deaths for the event is large for the given time/place/population; (ii) whether the event has a high potential public health impact; (iii) whether external assistance is required.

### Vulnerability analysis

On the Excel tool, the third tab has a worksheet for Vulnerabilities and coping capacities.

Presumably this to be used in conjunction with the sections below - B. Vulnerability analysis and C. Hazard-specific coping capacity.

Vulnerability refers to the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. In this regard, the vulnerability to a given hazard should take into account the following parameters:

* **access to health services** in potentially affected areas;
* the **health status of the populations at risk** based on health service coverage, population immunity, disease burden, etc.;
* **social determinants of health** such as access to good housing, water, sanitation, education and food security;
* **presence of** **vulnerable groups** in affected areas.

Further vulnerabilities may be identified based on the hazard itself. Other possible parameters affecting vulnerability include:

* poverty
* disability
* educational status
* geographical isolation
* food insecurity
* social stratification
* political instability.

Using information on the parameters above, use the following scale to rate existing vulnerabilities to the hazard and health consequences identified:

* 1: Very high
* 2: High
* 3: Partial assessment
* 4: Low
* 5: Very low

### Hazard-specific coping capacity

Coping capacity measures the means by which people or organizations use available resources and abilities to face adverse consequences. The coping capacity associated with a hazard will be determined by:

* capacity of the health sector to **detect, identify and respond to the hazard and its health consequences** at the given scale;
* functional **capacity of health facilities to manage expected caseloads** in potentially affected areas;
* existence of **community knowledge about the hazard**, and risk minimizing attitudes and practices.

Using information on the parameters above, use the following scale to rate coping capacity available for the hazard and health consequences identified:

* 1: Very high
* 2: High
* 3: Partial
* 4: Low
* 5: Very low

### Determination of impact

The Excel tool will determine impact automatically based on an aggregation of the scores given for severity, vulnerability and coping capacity. This score is then translated to a scale of 1–5 according to the impact scale below:

* 1: Negligible
* 2: Minor
* 3: Moderate
* 4: Severe
* 5: Critical

## Step 4: Hazard ranking

### Determination of risk level and ranking

The Excel tool will determine the level of risk carried by each hazard automatically, using the following scale: very low, low, moderate, high and very high

The risk matrix will provide a simple visual overview of the results of the exercise, clearly illustrating the priority hazards for preparedness and risk reduction activities.



### Confidence levels

Uncertainty in the quality of data will exist and – although it should not prevent decision-making for the purposes of emergency planning – information gaps should be recognized and registered by the participants. By scoring the confidence level for each hazard, users can identify where further data are needed so that the confidence level can be improved in the next STAR.

* **Good:** good quality evidence, multiple reliable sources, verified, expert opinion concurs, experience of previous similar incidents.
* **Satisfactory:** adequate quality evidence, reliable source(s), assumptions made on analogy, agreement between experts.
* **Unsatisfactory:** little poor quality evidence, uncertainty/conflicting views among experts, no experience with previous similar incidents.

## Step 5: Emergency preparedness actions

Once the risk matrix is produced, the Excel tool will automatically determine the hazards to which priority action should be directed. This is in the form of a risks summary table which indicates the level of preparedness required for each hazard.

### Minimum preparedness actions

Minimum preparedness actions are required for all hazards, and can be found in WHO’s global and regional frameworks for IHR (2005) and disaster risk reduction.

### Advanced preparedness actions

**Minimum preparedness actions** plus additional preparedness actions, such as:

* standard operating procedures developed and tested for field response;
* rapid response teams trained on standard operating procedures;
* enhanced surveillance and early warning mechanisms implemented (i.e. immediate reporting of surveillance alerts and follow up by rapid response teams, laboratory testing mechanism available);
* logistic requirements identified and stockpile maintained;
* implementation of early mitigation measures e.g. vaccination campaigns;
* implementation of risk communication activities;
* implementation of active surveillance (including in communities) in high-risk regions or districts.

### Risk mitigation actions

**All additional preparedness actions**, plus;

* emergency response contingency plan developed for hazard scenario;
* emergency funds identified and immediately available for mitigation and preparedness, as well as contingency funds for response.

# Presenting the results and next steps

As a key function in the risk management cycle, the purpose of the STAR is to inform direct actions that will increase the level of preparedness of countries with respect to priority risks. While the process itself will illuminate the necessary next steps, a structured approach to preparedness will allow actions to be effectively monitored and evaluated.

Proposed follow-up activities include:

* further use of the hazard risk assessment in national or subnational VRAM processes, if necessary;
* dissemination of a narrative report summarizing the results of the assessment, the detailed register of risks and proposed further actions for strengthening the country level of preparedness (Annex 5);
* revision of the national all-hazard emergency response plan including, for each very high-risk hazard, a contingency plan that lays out the hazard-specific preparedness, response and recovery requirements;
* for each hazard, implementation of the minimum and additional preparedness actions stemming from the level of risk posed;
* establishing a timeframe for the review of the risk assessment.

These suggested next steps should be implemented as part of a national emergency preparedness and readiness programme through the ministry of health, and in collaboration with other sectors and partners.

# Annex 1. Pre-workshop actions for the STAR working group

|  |  |
| --- | --- |
| ☐ | High-level support for STAR |
| ☐ | STAR workshop dates agreed |
| ☐ | Preliminary participants list developed |
| ☐ | Participants invited from all relevant sectors |
| ☐ | Facilitator for the STAR workshop identified |
| ☐ | Any co-facilitators identified and trained |
| ☐ | Analysis of previous risk assessments, capacity assessments done |
| ☐ | Preliminary hazard list drawn-up for presentation at workshop |
| ☐ | Available data for each hazard collected and compiled, including from other sectors  ☐ Epidemiologic data (including attack rates, morbidity/mortality, transmissibility)  ☐ Trends affecting frequency/seasonality/weather  ☐ Exposure information (including areas affected)  ☐ Basic characteristics of potentially affected populations  ☐ Information on available response capacities |
| ☐ | Identification of background documents that need to be shared with participants |
| ☐ | Share background documents and data ahead of the workshop |
| ☐ | Prepare opening presentations on the STAR method |
| ☐ | Ensure all equipment and materials in place for the workshop |

# Annex 2. Example STAR workshop agenda

|  |  |  |  |
| --- | --- | --- | --- |
| **Day** | **Time** | **Activity** | **Responsible** |
| **Day 1** | 30 mins | Registration |  |
| 30 mins | Opening and Introductions | Senior ministry of health official |
| 30 mins | Objectives of the workshop | Ministry of health/WHO |
| 60 mins | Introduction to risk assessment methodology: STAR toolkit | Facilitator |
|  | Morning break |  |
| 60 mins | Presentation of baseline data available on hazards/risk in the country | Ministry of health |
| 30 mins | Presentation of the preliminary hazard list | Facilitator – plenary session |
|  | Lunch break |  |
| 45 mins | Identification of health consequences per hazard | Facilitator – plenary session |
| 60 mins | Assessing scale and exposure | Facilitator – plenary session |
|  | Afternoon break |  |
| 60 mins | Determining likelihood through frequency and seasonality | Facilitator – plenary session |
| 15 mins | Day 2 outline | Co-facilitator |
| **Day 2** | 30 mins | Recap day 1 | Participant |
| 30 mins | Instructions for working groups  (grouped by hazard categories) | Facilitator – plenary session |
| 60 mins | Defining and scoring severity, vulnerability, coping capacity | Group work (each group addresses a selection of hazards) |
|  | Morning break |  |
| 60 mins | Defining and scoring severity, vulnerability, coping capacity (*continuation*) | Group work (each group addresses a selection of hazards) |
|  | Lunch break |  |
| 90 mins | Presentation and compilation of group results | Facilitator – plenary session |
|  | Afternoon break |  |
| 60 mins | Review of risk levels and assigning confidence levels for each hazard | Facilitator – plenary session |
| 15 mins | Day 3 outline | Co-facilitator/ministry of health |
| **Day 3** | 30 mins | Recap day 2 | Participant |
| 30 mins | Presentation of group work | Facilitator – plenary session |
| 30 mins | Planning emergency preparedness: mapping human and equipment resources requirements | Group work (each group addresses high- or very high-risk hazards) |
| 30 mins | Planning emergency preparedness: identifying additional preparedness actions | Group work (each group addresses high- or very high-risk hazards) |
|  | Morning break |  |
| 30 mins | Planning emergency preparedness: risk mitigation interventions | Group work (each group addresses one or more very high-risk hazard) |
| 60 mins | Presentation and compilation of group results | Facilitator – plenary session |
|  | Lunch break |  |
| 60 mins | Identification of next steps | Ministry of health/WHO |
| 30 mins | Participant feedback forms | Individual work |
| 30 mins | Summary and closing session | Ministry of health/WHO |

# Annex 3. Hazard classification

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Groups and subgroups** | | | **Types** | **Subtypes** |
| **Natural** | **Geological** | | Earthquake (G1) | Ground shaking |
| Tsunami |
| Mass movement (G2) |  |
| Liquefaction (G3) |  |
| Volcanic activity (G4) | Ash fall |
| Lahar |
| Pyroclastic flow |
| Lava flaw |
| **Hydrometeorological** | **Hydrological** | Flood (H1) | Riverine flood |
| Flash flood |
| Coastal flood |
| Ice jam flood |
| Landslide (H2) | Avalanche (snow, mudflow, debris, rockflow) |
| Wave action (H3) | Rogue wave |
| Seiche |
| **Meteorological** | Storm (M1) | Extratropical storm |
| Tropical storm |
| Convective storm |
| Extreme temperature (M2) | Heatwave |
| Coldwave |
| Severe weather condition (snow/ice, frost/freeze, dzud) |
| Fog (M3) |  |
| **Climatological** | Drought (C1) |  |
| Wildfire (C2) | Land fire |
| Forest fire |
| Glacial lake outburst (C3) |  |
| **Biological** | | Emerging diseases (B1) |  |
| Epidemics and pandemics (B2) |  |
| Insect infestation (B3) | Grasshopper |
| Locusts |
| Foodborne outbreaks (B4) |  |
| **Extra-**  **terrestrial** | | Impact (E1) | Airbust |
| Space weather (E2) | Energetic particles |
| Geomagnetic storms |
| Shockwave |
| **Human-induced** | **Technological** | | **Industrial hazards (T1)** | Chemical spill |
| Gas leak |
| Collapse |
| Explosion |
| Fire |
| Radiation |
| **Structural collapse (T2)** | Building collapse |
| Dam/bridge failures |
| **Transportation (T3)** | Air |
| Road |
| Rail |
| Water |
| **Air pollution (T4)** | Haze |
| **Hazardous materials in air, soil, water (T5)** | Biological |
| Chemical |
| Radio-nuclear |
| **Power outage (T6)** |  |
| **Explosions/fire (T7)** |  |
| **Food contamination (T8)** |  |
| **Societal** | | **Armed conflict (S1)** | International |
| Non-international |
| **Civil unrest (S2)** |  |
| **Terrorism (S3)** | Chemical |
| Biological |
| Radiological |
| Nuclear |
| Explosive weapons |
| **Financial crisis (S4)** | Currency crisis |
| Hyperinflation |

# Annex 4. Severity algorithms

**A) For biological hazards**

Moderate

Severe

Mild

Moderate

Severe

Mild

Low

High

Transmission potential

Seriousness

Seriousness

Very low

Low

Moderate

High

Very high

**B) For geological, hydrometeorological, societal and technical hazards**

Yes

No

Seriousness

Seriousness

Moderate

Severe

Mild

Moderate

Severe

Mild

Very low

Low

Moderate

Prolonged disruption of health services

High

Very high

# Annex 5. Format for narrative presentation of STAR results

**National strategic risk assessment for public health emergencies:**

**narrative report**

**Risk assessment method:** Strategic Tool for Assessing Risks (STAR)

**Country:** [INSERT COUNTRY NAME]

**Date conducted:** [INSERT DATE]

**Date for next assessment:** [INSERT DATE]

**Facilitator/author:** [INSERT NAME(S)]

**Section 1: Objectives of the workshop**

1. Provide a systematic, transparent and evidence-based approach to identify and classify priority risks.
2. For each hazard, define the level of national preparedness and readiness to mitigate the health consequences.
3. Guide the implementation of a comprehensive and strategic risk assessment to inform preparedness and response plans.
4. [ADD AS REQUIRED]

**Section 2: Presentation of the workshop**

* Place
* Participants
* Agenda

**Section 3: Workshop methodology**

3.1: General description of the methodology

3.2: Limitations

**Section 4: Presentation of workshop results**

Presentation of the overall risk assessment findings

[Insert final risk register, risk summary and risk matrix here]







**Section 5: Preparedness actions**

5.1: Minimum preparedness actions for all hazards

5.2: Advanced preparedness actions for high-/very high-risk hazards

5.3: Risk mitigation measures

**Section 6: Next steps and conclusion**

- End of report -

# Annex 6. Reference documents used in development of the STAR toolkit

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Published by** | **Year** | **Weblink** |
| Multi-sector initial rapid assessment guidance | IASC | 2015 | <https://interagencystandingcommittee.org/system/files/mira_2015_final.pdf> |
| Emergency response preparedness: risk analysis and monitoring, minimum preparedness, advanced preparedness and contingency planning | IASC | 2015 | <https://interagencystandingcommittee.org/system/files/emergency_response_preparedness_2015_final.pdf> |
| Early detection, assessment and response to acute public health events: implementation of early warning and response with a focus on event-based surveillance | WHO | 2014 | <http://apps.who.int/iris/bitstream/10665/112667/1/WHO_HSE_GCR_LYO_2014.4_eng.pdf> |
| Index for risk management – INFORM: concept and methodology | INFORM | 2015 | <http://www.inform-index.org/Portals/0/InfoRM/2016/INFORM%20Concept%20and%20Methodology%20Version%202016%20updated%20cover.pdf> |
| IPCS-WHO human health risk assessment toolkit: chemical hazards | WHO | 2010 | <http://www.who.int/ipcs/methods/harmonization/areas/ra_toolkit/en/> |
| Rapid risk assessment of acute public health events | WHO | 2012 | <http://www.who.int/csr/resources/publications/HSE_GAR_ARO_2012_1/en/> |
| European Centre for Disease Prevention and Control. Operational guidance on rapid risk assessment methodology | ECDC | 2011 |  |
| Tool for influenza pandemic risk assessment (TIPRA) | WHO | 2016 | <http://apps.who.int/iris/bitstream/10665/250130/1/WHO-OHE-PED-GIP-2016.2-eng.pdf> |

# Annex 7. Workshop evaluation form for STAR workshops

*[COUNTRY, DATE]*

1. **To what extent do you consider the methodology used to assess public health risks is appropriate in the context of your country?**

**1= Weak 5 = Excellent**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 |
| To allow for the identification of hazards |  |  |  |  |  |
| To allow the characterization (impact and severity) of hazards |  |  |  |  |  |
| To allow for multisectoral information sharing and establishing a common view of risks (ministry of health, civil protection, disaster management, etc.) |  |  |  |  |  |
| Is the methodology of the workshop appropriate for achieving the established objectives? |  |  |  |  |  |
| Can the results of the risk profiling be easily updated using STAR? |  |  |  |  |  |

1. **To what extent do you feel that the results of the risk mapping allow you to take action in the area of public health emergency preparedness?**

**1= Weak 5 = Excellent**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 |
| Developing emergency plans for priority hazards |  |  |  |  |  |
| Training/equipping staff to implement response actions |  |  |  |  |  |
| Prioritization of efforts and investments in the area of public health preparedness |  |  |  |  |  |
| Other? Please specify: |  |  |  |  |  |

1. **Do you have any other comments on the methodology employed in STAR ?**

|  |
| --- |
|  |

1. **Do you have other comments on the STAR toolkit?**

|  |
| --- |
|  |

*Thank you for filling out this survey!*

1. <http://apps.who.int/iris/bitstream/10665/112667/1/WHO_HSE_GCR_LYO_2014.4_eng.pdf> [↑](#footnote-ref-1)