

Benchmarks, Standards and Indicators for Emergency Preparedness and Response



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Introduction

Benchmarking is a strategic process often used by businesses to evaluate and measure performance in relation to best practices of their sector. WHO and its partners decided to apply the process of setting benchmarks as a novel approach for increasing performance in emergency preparedness and response. At a regional meeting in Bangkok in November 2005, twelve benchmarks on emergency preparedness and response were formulated by all 11 SEAR member countries. The Benchmarks are broad in nature as they reflect the consensus of all 11 countries on the desired performance for improving emergency preparedness and response. The twelve benchmarks fall into the categories of 1) human resource development, training and education; 2) planning; 3) legislation and policy; 4) funding; 5) vulnerability assessment; 6) information systems; 7) surveillance; 8) absorbing and buffering capacities and responses; 9) patient care; and 10) coordination.

Because the Benchmarks were formulated by a group comprising of participants from several sectors including health, home affairs, foreign affairs and education, they have a broad approach and integrate multi-sectoral concerns at community, sub-national and national levels. This means that once all Benchmarks are achieved, the level of preparedness of the country would be extremely high with inter-sectoral linkages and wide participation by all stakeholders. However, to achieve these is a long-term process, and the guiding principle is that not all countries will devote equal attention to all 12 benchmarks simultaneously. Rather, each country will have to prioritize its interventions based on specific hazard scenarios, areas with high vulnerability and the existing capacity of the country.

The framework provided by the Benchmarks is a strong tool for planning emergency preparedness programmes and activities. In order to facilitate monitoring and evaluation of progress against the Benchmarks and analysis of existing gaps, it is necessary to break down the individual Benchmark into its corresponding standards and indicators that spell out the best practices implicitly understood in the benchmarks.

The framework as outlined in this document consists of the Benchmark and its corresponding standards. Each Benchmark has two to three standards and each standard has between one to four health sector indicators against which monitoring can take place. The health sector indicators all refer to health related issues that various partners ranging from MOH, district health authorities, hospitals, UN agencies, NGOs and community partners have a mandate to ensure. The indicators are as specific as possible to make them measurable, but as they have to cater to 11 different countries, they remain somewhat generic. It is up to each country to formulate the precise and measurable indicator that applies to its situation.

For each standard, a set of non-health sector, or 'other sectors indicators', has been included. The other sectors indicators refer to essential preparedness issues that are not within the means of the health sector to achieve but that nonetheless will have a crucial impact on the overall preparedness levels of the country. Although their implementation might not be the mandate of the health sector, they are important to consider when planning and evaluating the health sector emergency preparedness activities.

Finally, the framework also includes a checklist. The checklist consists of pertinent questions for each standard that can help guide analysis of the existing situation and thus facilitate the establishment of the baseline that progress will be evaluated against.

For the purpose of this document the following definitions are used:

Benchmark

Benchmarking denotes a strategic process for organizations to evaluate and measure performance in relation to best practices of their sector. Setting benchmarks facilitates the development of plans of how increase various aspects of performance to adopt the best practices. The 12 benchmarks are broad in nature as they reflect the consensus of all 11 countries of the SEA region on the desired performance for improving emergency preparedness and response.

Standard

Standard denotes a technical reference level of quality or attainment. The standards are qualitative and universal in nature and are applicable in any operating environment as they specify the minimum level to be attained. The standards related to each benchmark are derived from the benchmark itself and further defines the technical quality of all components of the benchmark.

Indicator

Indicator denotes tools of measurements to the standards. They provide a way to measure and determine progress in achieving the standards. The indicators are both qualitative and quantitative and are universal in nature to reflect the fact they are regional indicators. A corresponding set of specific indicators should be developed at the country level to monitor the country-level progress towards the standards and benchmarks.

Definitions are based on:

- The Sphere Project, *Humanitarian Charter and Minimum Standards in Disaster Response*, 2004 edition
- HAC TYP project, *Framework: a Three-year Programme to improve the performance of the World Health Organization*, http://www.who.int/hac/about/threeyearplan_informationproducts/en/index.html
- HAC TYP project, *Annexes: a Three-year Programme to improve the performance of the World Health Organization* http://www.who.int/hac/about/threeyearplan_informationproducts/en/index.html
- Journal of Pre-hospital and Disaster Medicine, *Health Aspects of Disaster Preparedness and Response Report from a Regional Meeting of Countries of South East Asia Bangkok, Thailand*, 21–23 November 2005, vol. 21, Supplement 3

Benchmarks, Standards and Indicators

No	Benchmark	Standards	Health Sector Indicators	Other sectors indicators	Question / Checklist
1	Legal framework and functioning coordination mechanisms and an organizational structure in place for health EPR at all levels involving all stakeholders;	A legal framework for preparedness and responses is in place with sector specific policies / provisions	<ul style="list-style-type: none"> ▪ Health Sector specific policies and regulations to implement provisions of laws/acts (as above) are developed and instituted ▪ National health policy / plans includes EPR 	<ul style="list-style-type: none"> ▪ Comprehensive constitutional law/Act covering emergency preparedness, response, recovery and mitigation is enacted ▪ Review of existing Laws/acts for emergencies is conducted as per provision of national constitution 	<ul style="list-style-type: none"> ▪ Is there an exclusive act/legal provision relating to emergency preparedness, response and mitigation linked to the constitution in the country?
		Coordination mechanisms involving government, UN, civil society and private stakeholders are in place and functioning at national, provincial/ regional and district level	<ul style="list-style-type: none"> ▪ Health sector is represented in formal EPR coordination mechanisms ▪ Specific health sector coordination mechanism is developed and institutionalized at all levels ▪ Activities for health sector EPR coordination are taking place as specified by an established mechanism (e.g. meetings per month; report submission) 	<ul style="list-style-type: none"> ▪ Formal EPR coordination mechanisms identifying all key stakeholders is in place at national and sub-national levels 	<ul style="list-style-type: none"> ▪ Is there a similar coordination mechanism at national, sub-national (provincial); district; sub-district and community level that has also been established in line with existing legislation? ▪ Has the health sector coordination and response mechanism been established at the different levels of the health delivery system in the country including involvement of health services of the armed-forces and NGOs?
		Organizational structure that include defined roles for preparing for and responding to health effects of natural, biological, technological and man-made disasters is in place	<ul style="list-style-type: none"> ▪ Human and financial resources for health sector EPR are identified and matched to the mechanisms in place at national and sub national levels ▪ Roles, responsibilities, and lines of authority are clearly defined and supported by administrative structures across the health sector 	<ul style="list-style-type: none"> ▪ Roles, responsibilities, and lines of authority are clearly defined and supported by administrative structures across all sectors 	<ul style="list-style-type: none"> ▪ Has the administrative framework for EPR been identified in the country (e.g. nodal and other support ministries at the national level)? ▪ Has the armed-forces role been outlined in the national frame-work? If yes, it is for action or facilitation of support to the civil administration under the administrative-framework?

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2	Regularly updated disaster preparedness and emergency management plan for health sector and SOPs (emergency directory, national coordination focal point) in place;	All countries have a completed and up-to-date national disaster preparedness and response plan for the health sector.	<ul style="list-style-type: none"> ▪ A national plan for health sector emergency preparedness and response is developed, which includes the participation of all key stakeholders ▪ Health sector preparedness plans are developed and contain as a minimum: <ol style="list-style-type: none"> (1) Hazard and vulnerability analysis and risk mapping (2) mechanism for coordination and control; (3) description of roles and responsibilities of different partners (4) Pre-arrangements with partners (e.g. logistics support, medical supplies) (5) provisions for implementation and operationalisation of the plan (e.g. SOP) 	<ul style="list-style-type: none"> ▪ A national emergency preparedness and response plan covering all essential sectors is developed, which includes the participation of all key stakeholders 	<ul style="list-style-type: none"> ▪ Based on the legal provision, has the health sector EPR policy-framework, TOR has been outlined and health sector emergency plan developed? ▪ Has the health ministry under the health sector plan formulated specific TOR for involved partners, ministries, departments and NGOs at the national level? ▪ Does the health sector contingency plan cover the following; <ul style="list-style-type: none"> ○ Potential hazards and hazard-specific approaches. ○ Risk and vulnerability analyses ○ Standard operating procedures; ○ Memoranda of understanding with other health partners; ○ Mechanisms for coordination and control; ○ Types of responses by different partners.
		Health Sector Disaster preparedness and response plans must be practiced and critiqued at all levels and at regular intervals.	<ul style="list-style-type: none"> ▪ Drills and simulation exercises to test plans are conducted at least once a year at various levels of the health sector ▪ Revision of health sector plans is conducted based on results of simulation exercises and re-assessments of risks and takes place as a minimum every three years 	<ul style="list-style-type: none"> ▪ National emergency preparedness and response plans are tested through simulation exercises and drills and revised accordingly 	<ul style="list-style-type: none"> ▪ When was the health sector contingency plan prepared; <ul style="list-style-type: none"> ○ National; ○ Sub-national (provincial); ○ District; ○ Sub-district; ○ Community. ▪ When was the plan last revised? ▪ Has revision been done based on last simulation drill or exercise?
		Standard Operating Procedures are in place outlining roles and responsibilities, coordination mechanisms, TOR of focal points and other key positions	<ul style="list-style-type: none"> ▪ SOPs including TOR for key actors have been developed to operationalise the National Health Sector emergency and preparedness plan ▪ SOPs reflects the latest revisions of the National Health Sector Emergency and preparedness plan 	<ul style="list-style-type: none"> ▪ SOPs including TOR for key actors have been developed to operationalise the National emergency and preparedness plan and SOPs reflect latest revisions 	<ul style="list-style-type: none"> ▪ Are there SOPs developed in line with the plan?

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3	Emergency financial (including national budget), physical and regular human resource allocation and accountability procedures established;	National budgets include provisions for implementation of laws, regulations and plans for emergency preparedness and response	<ul style="list-style-type: none"> ▪ Health sector / MOH policies provide budget allocations for emergency preparedness and response plans ▪ Resources provided/mobilized for health EPR are based on analysis of gaps and needs as part of the regular country budget cycles. 	<ul style="list-style-type: none"> ▪ National policies provide budget allocations for operationalisation of emergency preparedness and response plans across all sectors 	<ul style="list-style-type: none"> ▪ Has an exclusive budget-provision been made in the health sector contingency plan at the national, provincial and district levels? Besides national budget, is there any provision for external funding? ▪ Has provisions been made to address gaps in resources? ▪ Against the allocated budget, what is the quantity of budget made available during last year & current year separately from national and external funding?
		National focal points or emergency units have been appointed to deal with emergencies and are provided with adequate resources to respond as required	<ul style="list-style-type: none"> ▪ At all levels, health sector EPR focal points/units/persons responsible are identified; resources are provided and support is in place 	<ul style="list-style-type: none"> ▪ At all levels and in all sectors EPR focal points/units are identified; resources are provided and support is in place 	<ul style="list-style-type: none"> ▪ Are there emergency focal points / units that are well resourced and in place at all levels?
		Clearly defined roles for emergency units / focal points for EPR and legal framework provisions are in place at all levels that specifies accountability procedures	<ul style="list-style-type: none"> ▪ Delegation of authority for health sector EPR focal points/units is supported by administrative procedures 	<ul style="list-style-type: none"> ▪ Delegation of authority for EPR focal points/units in all sectors is supported by administrative procedures 	<ul style="list-style-type: none"> ▪ Has provision for decentralized delegation of authority been made in the administrative framework so that timely resource for EPR is available up-to the community level?

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4	Rules of engagement (including conduct) for external humanitarian agencies based on needs established;	National guidelines include rules of engagement for external humanitarian agencies to be based on needs and following the direction of national authorities	<ul style="list-style-type: none"> ▪ Key public, private and civil society partners for health sector emergency preparedness and response have been identified and are included in emergency preparedness and response planning processes ▪ Working mechanisms, mandates and expected contributions by all identified partners are clearly outlined in national and sub-national health sector EPR plans / MoUs or other collaborative agreements. ▪ Code of conduct for international humanitarian organizations to guide response interventions reflects and is in line with anticipated public health needs 	<ul style="list-style-type: none"> ▪ Key public, private and civil society partners for emergency preparedness and response have been identified and are included in emergency preparedness and response planning processes ▪ Working mechanisms, mandates and expected contributions by all identified partners are clearly outlined in national and sub-national EPR plans / MoUs or other collaborative agreements. ▪ Code of conduct for international humanitarian organizations is developed to guide response interventions in line with needs 	<ul style="list-style-type: none"> ▪ Has the Ministry of health identified the participating agencies, ministries, departments and NGOs at different levels of health delivery system? ▪ What is the mechanism of this partnership – Government order, MoU, any other? ▪ Is the MOU valid for all levels of health delivery system or at any specific level/area? ▪ Have all key players been included in the preparedness and response planning and implementation process? ▪ Are there Public/private partnerships to assist with on-going funding for EPR?

No	Benchmark	Standards	Health Sector Indicators	Other sectors indicators	Question / Checklist
5	Community ¹ plan for mitigation, preparedness and response developed, based on risk identification and participatory vulnerability assessment and backed by a higher level of capacity;	Capacity to identify risks and assess vulnerability has been established in communities	<ul style="list-style-type: none"> ▪ Community assessments of risks and vulnerabilities recognize and reflect specific public health concerns 	<ul style="list-style-type: none"> ▪ Communities have assessed or participated in assessments of their vulnerabilities and risks 	<ul style="list-style-type: none"> ▪ Is there capacity in the community to identify and assess risks?
		Community plans for disaster preparedness and response are in place in communities based on vulnerability assessments and risk mapping.	<ul style="list-style-type: none"> ▪ Community preparedness and response plans reflect assessed risks to public health and specific health sector vulnerabilities and capacities ▪ Processes for developing plans are participatory and include input from various stakeholders and partners from the health sector 	<ul style="list-style-type: none"> ▪ Community plans for preparedness, response recovery and mitigation include a hazard and vulnerability analysis and risk mapping ▪ Process for developing plans are participatory and include input from various stakeholders and partners 	<ul style="list-style-type: none"> ▪ Has emergency risk analysis of the community been undertaken by the concerned local authorities? ▪ Does the community plan identify hazard prone areas and number of high-risk population based on assessments? ▪ Is the process for development of plans participatory and inclusive of all partners? ▪ Is the community plan been linked to the nearest health facility/post?
		Community plans outline the process for requesting and receiving the needed resources and plans interlink with national and sub-national plans	<ul style="list-style-type: none"> ▪ Community level focal points for health have access to back-up resources for preparedness and response ▪ Community plans elaborate the role of national and sub-national health authorities ▪ Roles and responsibilities of health and other stakeholders are clearly defined in the community level plan 	<ul style="list-style-type: none"> ▪ Community level focal points have access to back-up resources for preparedness and response ▪ Community plans elaborate the role of national and sub-national authorities 	<ul style="list-style-type: none"> ▪ Have roles and responsibilities been clearly defined for all organizations (government and non-government) involved in the community level disaster preparedness activities? ▪ What is the structure of coordination mechanism at the community level? ▪ Is local level decision making supported by administrative and resource capabilities? ▪ Does the health sector contingency plan include the community level health sector plan?
		Financial and human resources to implement these plans at community level are identified	<ul style="list-style-type: none"> ▪ Administrative and financial support for community based preparedness and response to public health issues are provided by national, sub national health authorities and / or other stakeholders 	<ul style="list-style-type: none"> ▪ Administrative and financial support for community based preparedness and response are provided by national, sub national authorities and other stakeholders 	<ul style="list-style-type: none"> ▪ Does the health sector EPR budget include support to the community? ▪ Has budget provision been made to provide immediate financial and administrative support for conduct of community based activities for emergency response? If so, for which activities?

¹ For the purpose of this document, community denotes a specified geographical/administrative area that may be affected by an ongoing emergency ; or assessed to be highly vulnerable to specific risks

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6	Community-based response and preparedness capacity developed, supported with training and regular simulation/ mock drills	Community capacity for emergency preparedness and response is developed	<ul style="list-style-type: none"> ▪ Systems are in place at community level to assess health training needs and update existing skills ▪ Training has taken place of staff of essential community level health facilities ▪ Training has taken place for community volunteers focusing on first aid and their role in public health interventions in emergencies ▪ Training has taken place for health volunteers on standards in emergency response (eg SPHERE) ▪ Basic supplies for public health and mass casualty care is in place for trained community members for use during an event 	<ul style="list-style-type: none"> ▪ CBOs are formed for emergency preparedness and response and receive training and support from relevant partners such as UNDP, I/NGOs ▪ Community volunteers are identified through systems and partners in various sectors ▪ Basic equipment is in place for trained community members for use during an event 	<ul style="list-style-type: none"> ▪ Have community level volunteers been trained in search, rescue and first-aid activities? ▪ Have arrangements been made for providing search & rescue and first aid services? ▪ Have they been equipped with basic equipment like megaphones for announcements, first-aid box including different color of triage tags for prompt medical relief, stretcher to carry the victims, emergency torch, whistle and other necessary items? ▪ Has the evacuation plan for the vulnerable community been prepared by the local authorities?
		Community level emergency preparedness and response plan and capacity is improved through mock drills and simulations annually	<ul style="list-style-type: none"> ▪ Simulation exercises and drills based on health sector preparedness plans are conducted at community level once a year 	<ul style="list-style-type: none"> ▪ Community plans are tested through simulation exercises and drills involving all essential sectors 	<ul style="list-style-type: none"> ▪ Have the trained community workers/volunteers been involved with simulation exercises at community level?

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7	Local capacity for emergency provision of essential services and supplies (shelters, safe drinking water, food, communication) developed;	<p>The minimum need for essential health services and supplies at the local level has been determined</p> <p>Local capacity for emergency provision of essential health services and supplies (e.g. shelters, safe drinking water, food, communication) is in place</p>	<ul style="list-style-type: none"> ▪ Community plans list essential services, supplies and logistics requirements for emergency response to health needs ▪ Financial resources are allocated for identified essential response supplies and equipment for health needs ▪ Essential supplies for health response are pre-positioned in strategic locations ▪ Inventory system for essential supplies and equipment for health is operational ▪ Community health EPR focal points/units applies SPHERE standards for health related emergency response ▪ Transport and distribution arrangements are identified and plans are in place ▪ Suppliers and transportation means are identified and plans are in place for emergency distribution of emergency supplies 	<p>Community plans list essential services, supplies and logistics requirement for emergency response to needs of affected population (shelter, water and sanitation, food, communication, transport etc.)</p> <ul style="list-style-type: none"> ▪ Financial resources are allocated for identified essential response supplies and equipment in sectors such as shelter, food, water ▪ Essential supplies for response in essential sectors are pre-positioned in strategic locations ▪ Community EPR focal points/units applies SPHERE standards for Emergency response 	<ul style="list-style-type: none"> ▪ Are the essential services, supplies identified, Are these essential supplies pre-positioned strategically? ▪ Has the safe location as well as shelter for vulnerable communities been identified? ▪ What are the facilities for providing adequate quantity of water at the site of internally displaced population? ▪ What is the arrangement of ensuring safe drinking water? ▪ What is the arrangement for providing periodic water quality testing as well as ensuring a regular water quality laboratory support? ▪ What is the arrangement for providing latrines? Does the responsible department have the capability of ensuring increasing number of facilities? ▪ What is the arrangement for disposal of sewage, excreta, dry / wet waste? ▪ What are the arrangements for medication, medical supplies and its supplementation at the community level? ▪ What are the arrangement of periodic health inspection and ensuring food safety in the internally displaced camps?

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8	Advocacy and awareness developed through education, information management and communication (pre-, during and post-event);	Advocacy for improved awareness of emergency preparedness measures and life-saving behavior during emergencies is carried out through regular education/media channels and through targeted communication	<ul style="list-style-type: none"> ▪ Awareness and advocacy materials on health sector EPR and public health issues are developed and disseminated widely to populations at risk from various hazards (e.g. information for preparedness, early warning, safety measures during an emergency) ▪ Health concerns are integrated in emergency preparedness and response awareness activities in school curricula 	<ul style="list-style-type: none"> ▪ Awareness and advocacy materials are developed and disseminated widely to populations at risk from various hazards (eg Information for preparedness, early warning, safety measures during an emergency) ▪ Emergency preparedness and response awareness activities are integrated in school curricula 	<ul style="list-style-type: none"> ▪ Have simple information on hazards, vulnerabilities, risks and why they occur, and how to reduce impacts been disseminated to vulnerable communities and decision-makers? ▪ Has the community been educated to recognise simple hydro-meteorological and geophysical signals for immediate response? ▪ Has the community been educated on how to respond to different types of hazards once an early warning message is received? ▪ Are public awareness and education built in to school curricula from primary schools to university level? ▪ Are mass media, folk or alternative media utilized to improve public awareness? ▪ Are messages for awareness piloted to test effectiveness?
		Information is managed in a way that it is available to all stakeholders	<ul style="list-style-type: none"> ▪ Systems for gathering, generating and sharing health related EPR information across and within various levels/sectors are in place 	<ul style="list-style-type: none"> ▪ Systems for gathering, generating and sharing information across and within various levels/sectors are in place (eg websites mailing lists, community meetings, community based organizations 	<ul style="list-style-type: none"> ▪ Is information on hazards, risks, awareness programmes and messages with various sectors disseminated across all levels?

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9	Capacity to identify risks and assess vulnerability at all levels established;	Capacity to assess vulnerability and identify risks is developed at community, sub-national (regional / provincial/district) and national level	<ul style="list-style-type: none"> ▪ Knowledge, expertise and resources for vulnerability assessment and risk mapping in the health sector are developed and utilized at all levels ▪ Repository of information from vulnerability assessments and risk mapping includes information specific to the health sector 	<ul style="list-style-type: none"> ▪ Knowledge, expertise and resources for vulnerability assessment and risk mapping across sectors are developed and utilized at all levels ▪ Gaps in knowledge, expertise and resources for risks and vulnerability assessments are identified ▪ Repository of information from vulnerability assessments and risk mapping is present and accessible to various stakeholders at all levels 	<ul style="list-style-type: none"> ▪ Does the health delivery system at the district, provincial & national level have the capacity to analyze risks and impact assessment at the community level? ▪ Is there expertise available in the country with conceptual framework of overall disaster risk management, definitions of terms, analysis of different models, importance of community based approach and the process in different contexts? ▪ Is there a link to health system planning process to take on risk reduction measures after assessments?
		Methods and tools for assessments are appropriate for various levels; participatory; and practical	<ul style="list-style-type: none"> ▪ Health sector specific methods for assessing vulnerability and mapping risk of systems and resources are developed and utilized ▪ Participatory tools for community level risk and vulnerability assessment includes specific health related questions ▪ IT technologies are used to supplement data gathering, analysis and dissemination 	<ul style="list-style-type: none"> ▪ Participatory tools for community level vulnerability assessment and risk mapping are developed and field tested ▪ 	<ul style="list-style-type: none"> ▪ Are necessary tools available for risk, hazard, vulnerability and capacity assessment? Participatory risk assessment tools? ICT technologies? (E.g. tools for data extraction, data preparation, data analysis and data exchange for risk assessment using geo-information tools, remote sensing and GIS in relation to disaster management issues).

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10	Human resource capabilities continuously updated and maintained;	Essential human resources capabilities for responding to public health needs in emergencies are trained and maintained continuously.	<ul style="list-style-type: none"> ▪ Training institutions are identified at various levels and training programmes are developed that reflect anticipated health needs and covers assessed gaps ▪ Human resources in the public health system (national and sub-national) are trained as part of preparedness for emergency response ▪ Human resource skills for health EPR are maintained / refreshed ▪ Emergency Preparedness and response topics are integrated in the public health, para-medical and medical curricula ▪ TOR have been developed for all key health system's functions in emergency preparedness and response 	<ul style="list-style-type: none"> ▪ As part of preparedness efforts, training mechanisms for emergency response are in place all sectors (e.g. search and rescue, water and sanitation, shelter, civil defense and fire fighting) 	<ul style="list-style-type: none"> ▪ Has orientation on health sector disaster preparedness been imparted to all health managers, health facilities and community workers located at all levels? ▪ Is there a training institution identified to deliver EPR training at all levels? ▪ Have health sector emergency preparedness training programmes been institutionalized in the public health, para-medical and medical curricula? ▪ Is there regular training conducted for health staff in the public health system?
		Trained experts are identified and on-call to provide immediate back-up in case of a disaster.	<ul style="list-style-type: none"> ▪ National roster of experts to provide technical and managerial back-up for health sector emergency response is developed and managed 	<ul style="list-style-type: none"> ▪ National rosters of experts to provide technical and managerial back-up for emergency response in all essential sectors are developed and managed 	<ul style="list-style-type: none"> ▪ Is there a roster of experts regularly maintained for the purposes of deployment during emergencies?

No	Benchmark	Standards	Health Sector Indicators	Other sectors indicators	Question / Checklist
11	Health facilities built/modified to withstand the forces of expected events.	New health facilities are built to withstand expected risks and will be able to continue to provide the required medical care at all times	<ul style="list-style-type: none"> ▪ Guidelines for building new health facilities are available and followed ▪ Risks to life-line infrastructure is considered in the design of new health facilities and internal back-up facilities are in place (e.g. generators, water tanks/ wells with manual pumps) 	<ul style="list-style-type: none"> ▪ A national building code with adequate standards for existing hazards is passed and enforced for essential and critical infrastructure 	<ul style="list-style-type: none"> ▪ Are there provisions in the building code for building hazard resistant critical facilities (e.g. health facilities)? ▪ Are the building codes enforced? Are there guidelines for the implementation of the building code? ▪ Are there also building code standards for the other lifeline infrastructure?
		Existing health facilities have undergone risk mitigation and reduction to improve their security and ensure functionality during emergencies	<ul style="list-style-type: none"> ▪ Risks from existing hazards are assessed in all key health facilities (e.g. hospitals, blood banks, laboratories, health posts) ▪ Assessed risks in health facilities are prioritized and essential problems are mitigated and reduced ▪ Health facility maintenance staff is trained in mitigating the non-structural risks of the facility and regular resources are available for risk mitigation. ▪ A hospital emergency plan is in place which outlines emergency management, mass casualty management and evacuation procedures, and staff are familiar with their role in emergencies 	<ul style="list-style-type: none"> ▪ Risks from existing hazards are assessed for all essential life-lines and infrastructure (e.g. water supply systems, electricity, access roads and bridges, sanitation and waste management, communication) ▪ Assessed risks to life-line systems and infrastructure are prioritized and essential problems are mitigated and reduced 	<ul style="list-style-type: none"> ▪ Have vulnerability assessments of the existing health institutions against impending hazards been undertaken?

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12	Early warning ² and surveillance systems for identifying health concerns established.	Early warning and surveillance systems for identifying public health concerns are established	<ul style="list-style-type: none"> ▪ Disease surveillance system is in place with regular reporting ▪ Functional response mechanism integrated in disease surveillance system at all levels ▪ Knowledge of public health threats in various emergencies is integrated in the existing disease surveillance system 	<ul style="list-style-type: none"> ▪ Early warning systems for identified hazards are in place (e.g. floods, tsunami, glof and hurricane) ▪ Water quality surveillance systems is in place with regular reporting 	<ul style="list-style-type: none"> ▪ Has the health system organized and established a surveillance and reporting /early warning system? Does this system have the installed capacity to address health threats as a result of an emergency? ▪ Is there a parallel decision-making process institutionalized to support the surveillance and early warning system? ▪ Is there a response mechanism that can be activated attached to the surveillance and early warning system? Are functions, roles and responsibilities of each actor for this response specified?
		Ability is installed to launch adequate surveillance and early warning systems to respond to a new public health hazard or threats to health in an emergency	<ul style="list-style-type: none"> ▪ Emergency surveillance and response needs are assessed and measures to address identified gaps are taken ▪ Resources (e.g. human, financial and logistics) are available to set-up appropriate health surveillance, reporting and early warning systems within the first 2-7 days after an event ▪ Health staff are trained in risk communication 	<ul style="list-style-type: none"> ▪ Information systems for sharing and interlinking information between sectors are in place ▪ Resources (e.g. human, financial and logistics) are available to set-up appropriate surveillance, reporting and early warning systems in essential sectors within the first 2-7 days after an event (e.g. water quality surveillance, food quality, hazard specific, IDP movements) 	<ul style="list-style-type: none"> ▪ Is there a fully equipped emergency response team to handle outbreaks /health threats and risks? ▪ Are these response teams regularly trained and updated with the latest guidelines, methods and techniques? ▪ How long is the response time for surveillance response teams to address health threats and early warning findings? ▪ Is there an effective mechanism established to communicate health risks to the community and populations at risk?

² For the purposes of this document early warning will pertain to health and diseases in emergencies