Guidance
for health sector assessment
to support
the post disaster recovery process

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ACRONYMS

ADHS	Analysing disrupted health sectors
AIDS	Acquired immune deficiency syndrome
ANC	Antenatal care
ARV	Anti-retro viral
BEmOC	Basic emergency obstetric care
BoD	Burden of disease
CCA	Common country assessment
CEmOC	Comprehensive emergency obstetric care
CESCR	Committee on Economic, Social and Cultural Rights
CFR	Case fatality rate
CHW	Community health worker
CMR	Child mortality rate
CS	Caesarean section
DaLA	Damage and Loss Assessment
DPT	Diphtheria, tetanus toxoid, and pertussis vaccine
DRR	Disaster risk reduction
EC	Emergency contraception
ECLAC	Economic Commission for Latin America
EPHS	Essential package of hospital services
EWARS	Early warning system
FBO	Faith-based organization
FGD	Focus group discussion
GAM	Global acute malnutrition
GFDRR	Global Facility for Disaster Reduction and Recovery
HeRAMS	Health Resources Availability Mapping System
HF	Health facility
HIS	Health information system
HIV	Human immunodeficiency virus
HMIS	Health management and information system
HRH	Human resources for health
IASC	Inter-Agency Standing Committee
ICRC	International Committee of the Red Cross
IFRC	International Federation of Red Cross and Red Crescent Societies
IHP	International health partnership
IMCI	Integrated Management of Childhood Illnesses
IMR	Infant mortality rate
INGO	International nongovernmental organization
IPC	Integrated food security phase classification
IPD	Inpatient department
IRA	Initial rapid assessment
KI	Key informant
LLITN	Long lasting insecticide treated nets
MD	Medical doctor
MDG	Millennium Development Goals
M&E	Monitoring and evaluation
MISP	Minimum Initial Service Package for reproductive health
MOH	Ministry of health
NGO	Nongovernmental organization

OPD	Outpatient department
PAHO	Pan American Health Organization
PDNA	Post disaster needs assessment
PEP	Post-exposure prophylaxis
PHC	Primary health care
PLHIV	Person living with HIV
PMTCT	Prevention of mother to child transmission
PTSD	Post-traumatic stress disorder
RF	Recovery framework
SAM	Severe acute malnutrition
SFT	Supplementary feeding therapy
SRH	Sexual and reproductive health
STI	Sexually transmitted infection
SWAp	Sector wide approach
TB DOTS	Tuberculosis directly observed treatment
TFC	Therapeutic feeding centre
UN	United Nations
UNDAF	United Nations Development Assistance Framework
U5	Under 5 (years)
U5MR	Under 5 mortality rate
WB	World Bank
WHO	World Health Organization

INTRODUCTION

This document provides guidance to national and international stakeholders involved in the health sector part of the Post Disaster Needs Assessments (PDNA). It is complementary to the health chapter of the Handbook for Estimating the Socio-economic and Environmental Effects of Disasters and the Damage and Loss Assessment (DaLA) methodology.[1]

A main focus of the DaLA is to assess the financial impact of a disaster on the health sector for example in terms of infrastructure, equipment and furniture, medication, as well as unforeseen expenses, such as increased costs for emergency treatment of injuries, loss of revenues in health facilities and surveillance. A general objective for estimating recovery and reconstruction needs of the DaLA is to restore the pre-disaster situation. This guidance brings together all the elements that are needed to allow an integrated assessment including the health impact on the population, the impact on infrastructure, as well as an assessment on the performance of and access to health services and their management by national health authorities. This full analysis is needed to support the 'building back better' approach.

The first chapter of this guidance proposes a framework for the PDNA that allows a systematic analysis of the impact of a disaster on the health of communities, the identification of new risks they are exposed to, determining the post-disaster functionality of the health infrastructure and the performance of the health system building blocks. The next section provides guidance on how to manage the PDNA process, followed by a description of the information that will be required and on the data collection methods that can be applied. The next sections includes guidance on how to assess capacity, how to integrate disaster risk reduction into the recovery planning and how to address cross-cutting issues. The last section provides information on how to develop prioritized recovery response options in order to generate input for the RF from early- to long-term recovery.

Disasters can have profound impacts on the livelihoods and health of affected populations. Restoring lifesaving services and assisting communities to cope with former and new health threats is a necessity to mitigate the impacts of disasters on human development needs, as reflected by the health related Millennium Development Goals (MDGs). Disaster recovery also represents opportunities to catalyse action on health policy and to strengthen the capacity of countries and communities to manage risks of future events. Reconstructing infrastructure and provision of supplies will not be sufficient if the overall system inhibits effectiveness of essential health services.[2] For this reason, other aspects, such as management, performance, and other support systems have to be taken into consideration.

The reference for analysing health system performance is the health system framework using the six building blocks, as defined by WHO in 2007.[3] The framework facilitates consistency in the data requirements for pre-disaster baselines, the assessment of the impact of the disaster including the estimation of damage and losses, and the analysis of the needs for recovery and reconstruction. The health systems framework can link the planning for recovery and reconstruction with the longer term national health development plans. Health systems must be based on a primary health care approach looking at four main principles (1) universal accessibility and coverage on the basis of need (2) community participation (3) intersectoral approaches (4) appropriate technology and cost effectiveness in relation to the available resources.[4] While this guidance focuses on assessing the

[1] Economic Commission for Latin America and the Caribbean (ECLAC) 2003.
[2] Potter, C and Brough, B. Systemic capacity building: a hierarchy of needs. *Health Policy and Planning* 19(5): 336–345
[3] *Everybody's business. Strengthening health systems to improve health outcomes. A framework for action.* http://whqlibdoc.who.int/publications/2007/9789241596077_eng.pdf
[4] http://www.who.int/whr/2003/chapter7/en/index3.html

impact of the disaster on health and the delivery of health services, the health sector assessment also needs to take into account other determinants of health, such as nutrition and livelihood, water and sanitation, environment and education.

Managing the assessment process for the PDNA is as important as the report and Recovery Framework (RF) that results from it. The health sector PDNA is led by the Ministry of Health in consultation with sub-national health authorities. It needs to be linked with humanitarian coordination mechanisms as well as with pre-existing sector wide coordination with (multi-sectoral) development partners and civil society.

While PDNAs strive for consistency, they also need to be adapted to each specific country. As such, the guidance is informed by each new PDNA. Updates and additional tools PDNAs and guidance for recovery in the health sector can be found on the websites of the International Recovery Platform[5], ECLAC[6], World Bank (WB) Global Facility for Disaster Reduction and Recovery (GFDRR)[7], WHO[8] and PAHO[9].

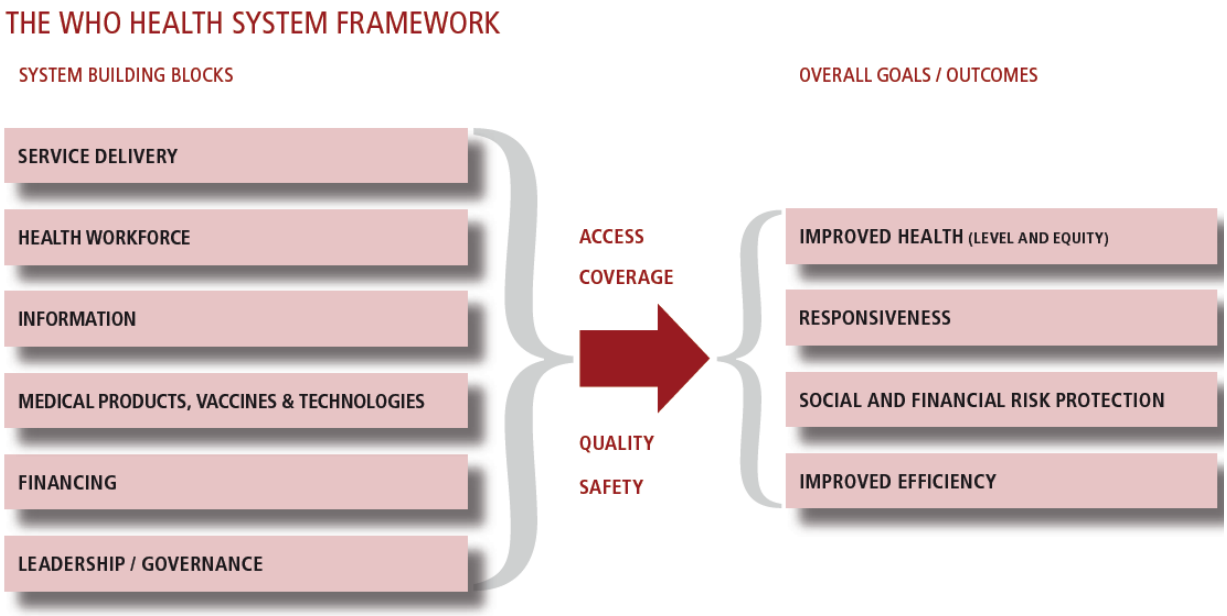
[5] http://www.RecoveryPlatform.org
[6] http://www.eclac.org/default.asp?idioma=IN
[7] www.gfdrr.org
[8] http://www.who.int/hac/en/
[9] http://new.paho.org/disasters/

HEALTH SECTOR ASSESSMENT AND ANALYSIS FRAMEWORK

This section provides a protocol to guide the PDNA assessment process for the health sector by identifying the relevant issues that need be assessed. The protocol is based on the health system framework. It is used in an assessment and analysis matrix that guides the assessment team in a systematic assessment of changes in the epidemiology of the burden of disease (BoD), the assessment of damage and loss, the performance of the main health programmes and the six health system building blocks. It takes into consideration the assets, stakeholders, and processes that are typically included in the sector and how they may be affected by a disaster. This enables analysis of how pre-existing performance and constraints may affect restoring access to essential services and changed health needs.

Health system framework

WHO defines the health sector as a system which 'consists of all organizations, people and actions whose primary intent is to promote, restore or maintain health. This includes efforts to influence determinants of health as well as more direct health-improving activities.[10] The health system framework is made up of six building blocks, with a strong interdependence between the building blocks. [11, 12]



The elements within each building block to be taken into account during the assessment include the following examples:

1. ***Service delivery:*** availability and accessibility of essential services, damages of infrastructure (temporary structures, pre-hospital units, mobile clinics etc); packages of services; organization and management; delivery models; safety & quality;
2. ***Leadership and governance:*** health sector policies; harmonization and alignment; oversight and regulation; governance capacity; coordination mechanisms
3. ***Health work force:*** national workforce policies and investment plans; human resource norms, standards and data; (remaining) numbers and types of health workers, distribution and competencies of health workers. Supervision mechanisms. Effects on and capacities of training institutions.

[10] Expanded from the World Health Report 2000. *Health systems: improving performance*.
[11] http://www.who.int/health-systems-performance/about.htm
[12] WHO 2007: *Everybody's business*; http://whqlibdoc.who.int/publications/2007/9789241596077_eng.pdf

4. ***Information**:* facility and population based information & surveillance systems; analysis capacity for decision making
5. ***Medical products, vaccines and technologies**:* access to essential medical products, vaccines and technologies, assured quality, safety, efficacy. norms, standards, policies; procurement and supply chains; quality; drug donations; health transport and logistics, warehouses, cold chain
6. ***Financing**:* national health financing policies; costing of services; tools and data on health expenditures and financial barriers to access services; ability to pay, catastrophic health expenditures; temporary waiving of user fees.

Under the first health system building block, health services, WHO lists a number of subsectors, under which a minimum of services should be available throughout the relief and recovery phase, before expanding to more comprehensive services.[13] These are;

- General clinical services,
- Child Health, Nutrition,
- Communicable diseases,
- Sexual and reproductive health (including STI, HIV/AIDS, Maternal and Newborn Health, and clinical management of sexual violence),
- Non Communicable Diseases (including injuries and Mental Health), and
- Environmental Health.

These health sub-sectors also guide the systematic assessment of the pre-existing burden of disease related to each subsector, and how the disaster affected this, directly or indirectly. Changes in morbidity, and their related costs, that can be attributed to the disaster are then calculated as losses. Other information that is required in relation to these subsectors is the assessment of performance of respective health programmes to address the morbidity, and how this capacity is affected by the disaster.

For example, the incidence of certain communicable diseases may increase due to changes in the environment or increased susceptibility of the affected population. This may not occur until a later stage, for example related to the malaria transmission season. Similarly, the nutrition status might deteriorate due to lack of food as well as higher prevalence of diarrhoea. In terms of injuries, there might be a high need of surgery immediately after the event, which will be followed by the increased need for follow-up care and prevention of long-term disability. Moreover, exposure to adversity is a potent risk factor for both acute and long-term mental health problems. This evolution within the health subsectors implies that a different focus is required for the immediate relief response and the longer term recovery. The essential minimum service delivery package has to be reviewed in line with country epidemiological profile and the changing epidemiological needs after the disaster. This has to be reflected in the assessment.

Health sector assessment and analysis matrix

The analytical matrix (see Table 1) provides a step by step assessment and analysis for the health sector PDNA. It serves to undertake the assessment for the identification of critical issues under the various headings of the top row and left column that will have implications for the response and revitalization and reconstruction of the system. The analysis will then help in defining a strategy to address the issues.

The assessment required to estimate damage and losses is integrated in this matrix, as the assessment of infrastructures needs to be analysed together with their functionality to provide services, the health system functions required to support such services, and the impact the disaster had on the health of communities. The method to calculate the costs of damages and losses is described in further detail in the ECLAC *Handbook for Estimating the Socio-economic and Environmental Effects of Disasters and the Damage and Loss Assessment (DaLA) methodology*.

[13] http://www.who.int/hac/network/global_health_cluster/herams_services_checklist_eng.pdf

Table 1: Analytical matrix for the health sector PDNA and RF

Health programmes and Health system functions	Pre-crisis challenges Baseline indicators	Impact of the crisis, key challenges for early recovery	Humanitarian response	Response for recovery, Strategy for reconstruction	Products & expected results for recovery, short and medium term	Activities and resources for the short and medium term	Key indicators for monitoring	Estimated costs for the RF
1aService delivery; health programmes								
1b Service delivery; Organization and management of services, incl. the health network (infrastructure, equipment, transport)								
2. Leadership and Governance								
3. Human resources for health								
4. health information system								
5. Health financing								
6. Medical products, vaccines and technology								

- **Pre-disaster baseline**; health status and pre-exiting health risks, performance of health programmes and the health system network, pre-existing policies, performance and challenges in the health system (including preparedness strategies and plans, disaster risk management programme in the health system)
- **Impact of the disaster**: Impact on the BoD, impact on the health infrastructure and their functionality for service delivery of health programmes, and impact on health system functions. Impact averted by preventive and mitigation efforts, capacity of the health system to respond
- **Response**: includes humanitarian and early recovery interventions to address changes in the BoD, (re)-establish lifesaving services, and restore the functioning of the health system (where the costs for these interventions are borne by the Ministry of Health, they are included in the estimation of losses)
- **Recovery strategy**: planning for outcome, outputs and monitoring indicators with targets for the short and medium term (including integrating disaster and emergency risk management into the health strategy and preparedness planning)
- **Estimates of costs** to address recovery and reconstruction needs, based on Building Back Better approaches.

Using the analytical matrix as protocol for the assessment and subsequent monitoring

By adding key indicators and examples of minimal qualitative data requirements in the analytical matrix, it becomes a standardized protocol for assessment data collection and analysis. Guided by the headings and the indicators in the template, the PDNA team collects and provides the information based on the best available data, evidence and/or professional expert judgments, while remaining sensitive to the perspectives of those most affected by the disaster.

Table 2 includes examples of key indicators for the assessment of the pre-disaster baseline within each health subsector as described above as well as for the health system building block. The choice of indicators needs to be reviewed and adapted based on the country context. The indicators are also to be used to assess the impact of the disaster as well as for monitoring. The indicators should be disaggregated and analysed by age

and sex. The matrix also provides examples of typical impacts, and issues or responses in relation to the immediate relief and early to medium recovery responses, which are to be used to formulate products and activities for the short and medium term in the report. See also *Annex 1* for further examples of health impacts of different types of disasters and response options. A format for the calculation of losses in the health sector can be found in *Annex 2*.

Table 2: Core indicators and issues sby health subsectors and health system building blocks[14]

	Key indicators: pre-disaster baselines and challenges, impact of crisis and monitoring	Disaster Impact - Key Issues	Possible Humanitarian Responses	Possible (Early) Recovery Response
Health Outcomes	– CMR, disability – Proportional mortality – Life expectancy (by sex)	– Increased number of deaths due to the immediate impact of the disaster – New health risks (e.g. potential outbreaks or interruption of services for chronic diseases)[15] – Effects on health related MDGs	– Analyse top 5 causes of mortality to prioritize the health interventions, and adjust these as morbidity patterns evolve over time – Appropriate management of dead bodies[16]	– Rehabilitation of disabled persons
Service Delivery 1: Organization & Management (including infrastructure, equipment and transport)				
	– Disaster and emergency risk management capacities in the MoH – Availability of functioning 24/7 referral system between levels of care – Average population covered by functioning health facility by type of health facility (HF) and by admin unit – #of hospital beds per 10 000 population by admin unit – # of outpatient consultations per person per year by admin unit – # of consultations per clinician per day by admin unit – Cost per case (treatment, transport, etc.) – Costs for campaigns – Average revenue per patient – Proportional mortality – # and % of HF that meet basic service capacity standards, – #HF with BEmOC/500 000 population by admin unit – #of HF with CEmOC/500 000 population by admin unit – % of HF with availability of clinical management of rape survivors +EC +PEP – % of births assisted by skilled attendant	– Availability of health resources and services – HF damaged/ destroyed, including equipment and furniture and records – Assess damage and loss – Estimate reconstruction costs – by type and extend of destruction ($) – Effect on transport, logistics for supplies and referral between levels of care, including communication network, accessibility by roads that may be blocked, etc. – Blood banks destroyed – Staff killed, injured or displaced? – Increased demand for health services in unaffected areas due to population movements	– (Re) establish provision of essential service package services: cost per case/per capita per year – When necessary set up temporary health facilities, and deploy medical brigades, supported by international assistance – Support health facilities in areas that received high numbers of IDPs – Temporary Pre-hospital units to treat injuries, and/or medical evacuation – (Temporary) Increase outreach services – Make buffer emergency medical supplies and emergency medical teams available; establishment of semi-permanent structures	– Support to the decentralization process when this is part of the national health policy – Support to management of health facilities – Repair of health facilities – Replacement of damaged health and medical equipment (based on safe hospital concept, see section on DRR) – Replacement of furniture – Relocation of facilities – Re-establish blood banks – Review health network and rationalize numbers, types, and distribution of health facilities when appropriate

[14] This table will be further elaborated in 2011, to provide more examples of proposed activities and indicators for follow up to measure progress of the implementation of the recovery framework.
[15] Fact sheets on health effects of hazards: http://www.who.int/hac/techguidance/tools/WHO_strategy_hazards.pdf
[16] See *Management of dead bodies after disasters. A field manual for first responders.* PAHO, WHO, ICRC and IFRC. 2006

	Key indicators: pre-disaster baselines and challenges, impact of crisis and monitoring	Disaster Impact - Key Issues	Possible Humanitarian Responses	Possible (Early) Recovery Response
Service Delivery 2: Health Subsectors				
Child Health	– Under-five mortality rate – Infant mortality rate – Proportion of 1 year-old children immunized against measles (and estimate of coverage 6 months - 15 years) – Coverage of DPT3 in under 1 year by admin unit	– Increased Child mortality/ U5MR/ neonatal mortality – Disruption of routine vaccination services? – Increase in malnutrition/disease interactions among vulnerable children?	– Total cases of respiratory tract infection + cost per case – Total cases of U5 diarrhoea + cost per case – Mass vaccination campaigns (combined with vitamin A and bednets, de-worming, etc.) – Basic neonatal care for newborns linked to deliveries in health facilities (see MISP for EmOC)	– Re-establish routine vaccination – 2x/year de-worming campaigns in schools – Scale up IMCI as part of EPHS, including a strengthened community component
Nutrition	– # of admissions to SFT and TFC (age/sex) – %/# of U5 GAM and SAM cases detected at OPD/IPD – Prevalence of underweight children U5 – Proportion of population below minimum level of dietary energy – consumption – Prevalence of GAM + SAM – Level of food-security based on IPC	– Food shortage, lack of access to food by vulnerable populations, reduced diversity in diets, changes in breastfeeding practices as a result of the disaster; treatment of malnutrition disrupted by disaster? – Increased risk of malnutrition (women, children and elderly?)	– Incorporate vitamin A, zinc, and iron foliate in ongoing immunization campaigns – screening for malnutrition in health facilities and population based – Supplementary and therapeutic feeding programmes	– Growth monitoring – Nutrition programmes within IMCI
Communicable Diseases	– # or incidence rates for selected diseases relevant to the local context (by age/sex)(cholera, measles, acute meningitis, others) – CFR for most common diseases – Incidence, prevalence and death rates associated with tuberculosis – # and proportion of tuberculosis cases detected and cured under directly observed treatment short course – Incidence and death rates associated with malaria – Proportion of children under 5 sleeping under insecticide-treated – bednets – Proportion of children under 5 with fever who are treated with – appropriate anti-malarial drugs – HIV prevalence among population aged 15-24 years	– treatment disruption for patients on ARV (including for PMTCT) and DOTS – Increased risk of HIV transmission – increased risk of malaria (increased exposure due to loss of homes, bed-nets etc) – Total cases of typhoid/ fever + cost per case – Total cases of diarrhoea + cost per case – Total cases of malaria/ dengue + cost per case prevention and control of disease outbreaks	– Disease control surveillance – Treatment of increased morbidity – Tracing and treatment of known TB patients – Ensure appropriate HIV prevention measures – Tracing and provision of ART for people previously on treatment, including PMTCT – Mass distribution of bed-nets – Environmental vector control (in crowded places) – Establish standard precautions (Distribution of hygiene kits, Provision of disinfectants; and safety boxes)	– Community health education/promotion – Restore or establish a comprehensive TB, Malaria and HIV control programme – Further integration of vertical programming with other services.

	Key indicators: pre-disaster baselines and challenges, impact of crisis and monitoring	Disaster Impact - Key Issues	Possible Humanitarian Responses	Possible (Early) Recovery Response
	– # of patients on ART – Condom use at last high-risk sex – Proportion of population aged 15-24 years with comprehensive correct – knowledge of HIV/AIDS – Ratio of school attendance of orphans to school attendance of non orphans aged 10-14 years – Proportion of population with advanced HIV infection with access to antiretroviral drugs			
Sexual & Reproductive Health	– % of births assisted by a skilled attendant – % expected deliveries by CS by admin unit – # of cases or incidence of sexual – violence (by sex and age) – Maternal mortality ratio; fertility rate – Contraceptive prevalence rate – Adolescent birth rate – Antenatal care coverage (at least one visit and at least four visits) – Unmet need for family planning	– Increased risk of maternal and infant mortality and mortality – Increased risk of sexual and other forms of gender-based violence – Disruption in access to family planning – Disruption of PMTCT regimens for HIV+ pregnant women	– Ensure provision of Provision of reproductive health services guaranteeing availability of MISP and expanding as possible – Clinical management of rape services and emergency obstetric care (basic and comprehensive) – Financial protection maternity services: free access deliveries, to EmOC, and follow up post partum	– Ensure sustainable provision of MISP and beyond – establish minimal availability for MISP, including EmOC – Integration of interventions, including antenatal care (ANC), PMTCT, nutrition and immunization – Strengthening of national family planning programme
Non Communicable Diseases	– Prevalence of hypertension and diabetes	– Patients lost for treatment of hypertension and diabetes	– Tracing of old cases on hypertension and diabetes treatment; treatment of skin and eye infections	– Re-establish data system for patients on treatment – Strengthen home care for patients with chronic diseases (communicable and non-communicable)
Injuries	– % of population with severe or extreme difficulties in functioning	– Potentially high number of injuries – Increase # people with disabilities – Untreated wounds and infections of wounds are major public health problem, risks for tetanus	– Treatment of injuries - prevention of long-term disability – # of total cases of injuries and cost per case – Field hospitals, surgery & basic EmOC – Set up referral mechanism, including international evacuation of patients – Vaccination campaigns to include tetanus – Amputations follow up care to be done at primary care level	– Rehabilitation of persons with disability – Strengthen capacity for prostheses and rehabilitation – Disability care to be taken into consideration in new health system

	Key indicators: pre-disaster baselines and challenges, impact of crisis and monitoring	Disaster Impact - Key Issues	Possible Humanitarian Responses	Possible (Early) Recovery Response
Mental Health and Psychosocial Support[17]	– % of population with severe or extreme difficulties in functioning – Severe disorder (e.g., psychosis, severe depression, severely disabling form of anxiety disorder): 2-3% – Mild or moderate mental disorder (e.g., mild and moderate forms of depression and anxiety disorders, including mild and moderate PTSD): 10%	– Decrease in functioning – On average prevalence of severe mental disorder increases 1% – On average rates of mild or moderate mental disorder increases 5-10% – Mild or moderate: 15-20%	– Strengthen community self-help and social support – Ensure access to psychological first aid to people in acute distress – Manages new and pre-existing severe mental disorders in general health care – Address the safety, basic needs and rights of people in mental hospitals + cost per case	– Initiate development of sustainable community mental health system – Build long-term, basic, sustainable community mental health services in areas affected by emergencies – In districts without psychiatric inpatient care, plans for new general hospitals as part of health recovery investment should include considering planning for a staffed acute psychiatric care inpatient unit – Include mental health in curriculum and of PHC staff
Environmental Health	– Proportion of people with less than 15 l of water /day – % population urban/rural, access to improved water sources and sanitation by sex – Distance to nearest water access point, by sex and age – Distance to nearest sanitation facility, by sex and age	– Destruction of clean water supply – Health hazards resulting from stagnant waters and deteriorated water quality	– Provision of safe drinking water; provision of wastewater and solid waste disposal – Environmental vector control (in crowded places) – Disposal of medical waste	– Drinking water supply restoration to prevent the further spread of waterborne diseases – Reconstruction of wastewater and solid waste disposal
Leadership and Governance	– Existence of a health sector preparedness and response strategy document linked to national needs and priorities that includes the role of the lead and partner agencies; – Existence of a functioning coordination mechanism at central level and field level within the health sector and cross-cutting themes; – Existence of an essential medicine list that satisfy the priority health care needs of the population and that is adequate for the competence level of health workers	– Reduced national capacity to respond to disaster – Many stakeholders already present, and new stakeholders entering, further challenging health coordination – Governments likely to send technical assistance/experts to strengthen MoH functions for longer term – MoH infrastructure and governance capacity compromised (loss of human resources, infrastructure and equipment damaged) – PDNA/RF as opportunity to guide new investments coming 6-18 months	– Coordination mechanism in the acute response/ leadership (humanitarian Health Cluster - Goverment) – Ensure/ promote national ownership – Ensure adherence to national guidelines by international actors	– Link recovery planning to coordination with development partners (e.g. SWAp, IHP+) – Exit strategy for international humanitarian NGOs, and/or use capacity of (I)NGOs to support recovery process and capacity building of district and central health authorities – Integrating disaster risk reduction & disaster management in health strategy. Preparedness strategies/ plans: identification of hazards, vulnerabilities & capacities, hazard early warning systems, established disaster risk management, risk awareness and educational

[17] IASC Reference Group for Mental Health and Psychosocial Support in Emergency Settings. Mental Health and Psychosocial Support in Humanitarian Emergencies: What Should Humanitarian Health Actors Know? Geneva, 2010.
http://www.who.int/mental_health/emergencies/what_humanitarian_health_actors_should_know.pdf

	Key indicators: pre-disaster baselines and challenges, impact of crisis and monitoring	Disaster Impact - Key Issues	Possible Humanitarian Responses	Possible (Early) Recovery Response
				programmes for disaster and emergency risk, risk prevention & avoidance programmes & preparedness programme
Health workforce	– # of health workforce (MD, nurse, midwife) per 10 000 population by admin unit (by sex) – # of CHWs per 10 000 by admin unit – Annual # of graduates of health professions educational institutions per 100 000 population by level and field of education	– Loss of workforce, health staff affected by the disaster - (displaced , family members to care for etc) – # of health workforce (MD, nurse, midwife) per 10,000 population by admin unit (by sex) remaining – Damages in schools for health workers, # of training facilities affected – Damages to institutes of public health and research	– Replacing, strengthening, and/or reactivating workforce – Financial incentives to re-activate the health workforce – Train and deploy community outreach workers (appropriate sex and age balance)	– Replacing/ strengthening/ reactivating workforce – Reconstruction and reopening of training facilities – Adapt training programmes on new relevant issues – Task shifting – Capacity building in first aid, disaster preparedness, response and recovery
Information	– # of HF routinely collecting, analysing and reporting relevant data	– Break down of information system	– Strengthen early warning system, including disease surveillance – Coordinate information collection & analysis by all partners	– Re-establish routine health information system and reporting by age & sex (as relevant) – Risk assessment, including hazards, vulnerabilities and capacities
Financing	– Existence of user fee protection for those unable to pay – External resources for health as % of private expenditure on health – Per capita total expenditure on health at average exchange rate – Per capita government expenditure on health at average exchange rate (US$) – Out-of-pocket expenditure as % of private expenditure on health	– Further loss of livelihood and reduced ability to pay for health services – Increased dependence on external funding – Lost of revenue due to free health services – Increased expenses for treatment, transport etc.	– Ensure free health services and access to essential medicines in the public and private not for profit facilities: initially 3 months then review – NB: Consider effect of waiving fees on private sector, in particular if they also waive or reduce fees	– Establish capacity to analyse possible consequences on quality and access when waiving user fees – Establish mechanism to compensate loss of revenue, in particular in private not for profit, that work on the basis of cost recovery schemes – creation of social solidarity or emergency fund to finance purchasing of services – Medium-long term reform of financing system, exploring different modalities of (mixed) prepayment mechanisms, that include adequate social protection for health, and that includes all groups of service providers – Ensure links between financing and delivery of services for the population and vulnerable groups, exploring modalities of performance-based funding

	Key indicators: pre-disaster baselines and challenges, impact of crisis and monitoring	Disaster Impact - Key Issues	Possible Humanitarian Responses	Possible (Early) Recovery Response
Medical Products and Technology	– % of HF without stock out of a selected essential drug in 4 groups of drugs by administrative unit – Existence of an essential medicine list that satisfy the priority health care needs of the population and that is adequate for the competence level of health workers	– Break down of supply chain and medical logistics – Damage to warehouses, equipment and stocks – (Inappropriate) drug donations – NB: consider effect on private pharmacies when donated medicines are provided for free	– Provision of kits, medicines and medical inputs; replacement of drug kits/ vital medicines – Advocate for application of national essential medicine list by service providers – Free access to medicines during the emergency phase (first 3 months, then review)	– Procurement of medicines, safe delivery kits, medical equipment and generators; reestablishment of the cold chain – Integrate access to essential medicine within the new financing modalities (including creation of social solidarity or emergency fund to finance purchasing of services and essential medicine)

MANAGING THE PDNA PROCESS AND ITS OUTPUTS

Managing the process for doing the PDNA is as important as the report and its Recovery Framework in terms of influencing in-country institutional and policy improvements.[18] Recovery is a complex and long process which depends on the pre-disaster conditions, the capacity of the government, and the impact of the disaster. Internal and external partners need to work together to rebuild the State's capacity to deliver health and other essential services while also re-establishing economic activities and security. Planning health system recovery should start early. Formulating sound policies, adequate strategies and flexible plans, are essential steps to provide a framework for action in an environment that is often highly fragmented.

The health sector PDNA is led by the Ministry of Health in consultation with sub-national health authorities, other relevant sectors, and the overarching national governmental body managing disasters such as the National Disaster Management Authority. This ensures alignment of the recovery framework to the national health development plan.
Clear roles and responsibilities should be developed and assigned to different departments and at various levels. Furthermore, the policy analysis and planning function in the MoH needs to be involved and strengthened if necessary.

The ability of the government to manage the response to the disaster can be affected by the disaster, but may also be determined by its pre-existing capacity. This may lead to interruption of the process to formulate an overall health sector recovery policy and translate it into health strategies and annual plans that can be resourced and implemented.

It is important to include the health development partners in the PDNA process, such as UN agencies, development banks, donors, NGOs, FBO, CBO, civil society, professional associations, and the private sector. Where development coordination mechanisms exists, such as the Sector Wide approach or the International Health Partnership, these partners need to be consulted to assist in the assessment process, and to ensure the harmonization of their support to the recovery plan. If such sector wide coordination mechanism does not yet exist, the PDNA process can be used to establish this.

Unique to the health sector is that many humanitarian health organizations will descend on a country post-disaster. As such, it is equally important to assist the MoH that the PDNA process is linked to the coordination for the humanitarian response. Since the humanitarian reform of 2005, this is done through the IASC cluster approach. Information collected by the health cluster to inform the humanitarian response, for example through Initial Rapid Assessment and the Health Resources Availability Mapping System, is also valuable to provide essential information for the PDNA and the recovery strategy. Partners in the health cluster need to be informed about the PDNA and consulted to see how they can support the recovery process. It is particularly important to ensure that the PDNA builds on the health, nutrition and other IASC Cluster assessments to the extent possible.

The health sector PDNA has two main outputs: The first is a 15 to 20 page document that provides a more detailed report from the assessment, and a more detailed plan for the recovery. The time horizon for the recovery plan is determined by the government, but usually covers 2-3 years, although in some disasters the recovery timeframe can (and should) be much longer. The health sector recovery plan can then be used as a basis for more longer term development plan of

[18] *Global dialogue on post disaster recovery and reconstruction planning*, 5 October 2010, Discussion Paper, GFDRR.

the areas affected. The second output is a summary as a contribution to the overall PDNA report. The sectoral components are usually no more than 3 to 4 pages.

When conducting the PDNA it is important to follow the same guiding principles that apply to the entire recovery process in the health sector:

- Promote a locally driven and -owned process
- Promote - and capacitate - national leadership
- Align the PDNA with the government's strategy, policy and systems
- Ensure coordination with other sectors
- Adopt a system approach using the six health system building blocks
- Ensure appropriate sequencing
- Think medium to long-term
- Reflect the priorities and concerns of those populations and stakeholders most affected

For an overview of steps to take for the PDNA process, see *Annex 3*.

Staffing requirements and logistics for PDNA health team

The PDNA health team will be led by the MoH focal point as appointed by the government. Sectoral experts from the WB, EU and UN will be asked to assist. In general, the team needs to have at least one health system and recovery expert, and one health economist with expertise of the DaLA methodology. Depending on the scope of the PDNA, an additional epidemiologist is required. Several national health development partners will be offering assistance to support the health assessment. A Steering Committee needs to be formed, inclusive of the most relevant stakeholders, to oversee the health assessment. Relevant national experts from departments in the MoH and from the country offices of health partners need to be included in the process. Depending on the areas affected by the disaster, the respective provincial health authorities need to be represented in the Steering Committee. When relevant, technical support needs to be requested from headquarters, to review drafts or provide specific technical inputs.

Transport for the assessment team is required to meet stakeholders and to conduct site visits for direct observation and consultation with affected communities, representative of the health authorities in the affected area and managers of affected health facilities. The transport for the PDNA assessment should be organized with support from development partners. This will allow the national authorities to dedicate their transport capacity to support the emergency response.

DATA COLLECTION PROCESS, ASSESSMENT TOOLS, METHODS AND INDICATORS

The data collection strategy and information requirements for the health sector recovery should be seen as a process and placed in the cycle of disaster management. This means that assessments and information required for (early) recovery build on data that is collected before the disaster happened, from normal HMIS and other reports, including from disaster preparedness, as pre-disaster baseline, and rapid assessments in the early humanitarian phase.[19] It should then become a monitoring system of the health system performance. See *Annex 4* for different assessment methods and information systems related to the first 4 phases of an acute onset disaster. Therefore, the post disaster needs assessment should be understood as a process and not a stand alone activity.

The scope and depth of the assessment is constrained by the limited time in which it needs to be accomplished. The assessment teams needs to make use of existing data whenever possible, such as data that has already been collected through the humanitarian interventions, and decide on critical additional information that needs to be collected specifically for the PDNA and recovery framework. See *Annex 5* for examples of assessment tools linked to the different Health System building blocks.

There is no single source or a single method that can provide all the necessary information. Information in the health sector is collected by various stakeholders using various sources of information. The main sources for the PDNA are key informants, for example from the Ministry of Health and development partners, focus group discussions with stakeholders and relevant experts, health facility based information systems, observations, complemented by surveys of health facility performance and population based surveys. When surveys are appropriate, sampling will be purposive in the initial phases towards representative sampling in later phases.[20] When interviewing people, there needs to be a sex balance of the assessment team as well as of informants and participants to focus group discussions.

Key source documents include the WHO statistics information system,[21] national policy documents, Demographic Health Surveys, Multi Indicator Cluster Surveys, Annual reports and Mid Term Reviews of the national health plan, national statistics and Health Information Management System reports, vulnerability assessments, etc

Priority should be given to using existing national and local information collection systems as this would also provide a unique opportunity to strengthen these systems when needed. Depending on what information would already be available from, for example, national HMIS, there may be more or less need to do additional assessments. Examples of assessment tools can be found in the Health Cluster Guide.[22]

Using the health system framework ensures consistency and continuity in information requirements between the different phases of a disaster. As mentioned earlier, the analytical matrix includes key indicators (see Table 2). Where possible, the indicators need to be

[19] See also Word Bank 2008. *Data against natural disasters : establishing effective systems for relief, recovery and reconstruction.* Editors Samia Amin and Markus Goldstein.
[20] See *Operational guidance for coordinated assessments in humanitarian crises*. Inter-Agency Standing Committee. Needs Assessment Task Force. 2010
[21] http://www.who.int/whosis/en/
[22] *Health Cluster Guide. A practical guide for country-level implementation of the Health Cluster* http://www.who.int/hac/network/global_health_cluster/guide/en/index.html

disaggregated by age and sex. The indicators used are in line with those developed by the Global Health Cluster,[23] and the Needs Assessment Task Force. The documents available on the website include information, the method how to collect the data, benchmarks and general comments that guide interpretation. See also module 2, page 57 of manual for Analysing Disrupted Health Sectors on several key indicators, that includes discussion on their usefulness, sources and cautions regarding interpretations.[24, 25]

Information required for assessments is similar to the information requirements for the monitoring and evaluation systems, i.e. the information that identified a need, such as a low vaccination coverage, requires follow up by monitoring to see if the interventions are effective in improving this coverage indicator.

Establishing such a monitoring system, where possible based on the existing health information management system, will therefore also allow assessing progress and effectiveness of the recovery interventions. The Monitoring and Evaluation (M&E) plan should focus on a few critical indicators, have clearly defined frequency and timeline, and preferably be implemented by a multi-sectoral team comprising surveyors and evaluators as part of the overall strategy of recovery M&E. For an example of such monitoring system, see the Tsunami Recovery Impact Assessment and Monitoring System.[26] A budget, usually 5 to 10% of the recovery and reconstruction budget, should be set aside for this purpose.[27]

[23] See Global Health Cluster tools; http://www.who.int/hac/global_health_cluster/guide/tools/en/index.html
[24] http://www.who.int/hac/techguidance/tools/disrupted_sectors/en/index.html
[25] Guidance on recommended Indicators for HIS Strengthening (Health Metrics Network) http://www.who.int/healthmetrics/tools/GFGuidanceOnRecommendedIndicators09.pdf
[26] http://whqlibdoc.who.int/hq/2006/a91183.pdf
[27] *World Bank Good Practice Notes* 1 ***Health*** *July 2008*

CAPACITY ASSESSMENT

Assessing capacities in the health sector is essential for two reasons: The first is to understand the ability of the national health authorities to to manage the recovery process. This includes assessing the financial management and procurement aspects of health system as these are necessary for effective management of the response. Assessing the adequacy of the financial management system is required to make choices on managing and accounting for the resources being made available, and to judge the absorption capacity for recovery funding. The PDNA also needs to take into account the capacities that are brought to the disaster response through NGOs, to see how this capacity can be used to support the recovery process.

The second reason is to identify technical support needs for planning effective capacity strengthening interventions, as required for medium and long term recovery. A strategy for meeting these gaps is part of the PDNA report. It is important to recognize that capacity building goes beyond training, rebuilding infrastructure and replacing equipment. Instead, systemic capacity building has to be the focus to improve diagnosis of sectoral shortcomings in specific locations, improve project/programme design and monitoring, and lead to more effective use of resources.[28] Institutional capacity is a vital ingredient in providing effective services. When this capacity is inadequate, health spending, even on the right services, may lead to little actual provision of services.[29]

Potter et al. identified nine areas of capacity building with key questions how these can be assessed through key questions (Table 3). The table below indicates how the questions need to be linked to the health system building blocks as used in Table 2.[30]

Table 3: Areas and key questions for capacity assessment

Nine Areas for Capacity Assessment	**Link to Health System Building Blocks**
1. Performance capacity: Are the tools, money, equipment, consumables, etc. available to do the job? A doctor, however well trained, without diagnostic instruments, drugs or therapeutic consumables is of very limited use.	Service delivery Medical products Financing
2. Personal capacity: Are the staff sufficiently knowledgeable, skilled and confident to perform properly? Do they need training, experience, or motivation? Are they deficient in technical skills, managerial skills, interpersonal skills, gender-sensitivity skills, or specific role-related skills?	Human resources
3. Workload capacity: Are there enough staff with broad enough skills to cope with the workload? Are job descriptions practicable? Is skill mix appropriate?	Human resources
4. Supervisory capacity: Are there reporting and monitoring systems in place? Are there clear lines of accountability? Can supervisors physically monitor the staff under them? Are there effective incentives and sanctions available?	Human resources Information
5. Facility capacity: Are training centres big enough, with the right staff in sufficient numbers? Are clinics and hospitals of a size to cope with the patient workload? Are staff residences sufficiently large? Are there enough offices, workshops and warehouses to support the workload?	Service delivery
6. Support service capacity: Are there laboratories, training institutions, bio-medical engineering services, supply organizations, building services, administrative staff, laundries, research facilities, quality control services? They may be provided by the private sector, but they are required.	Service delivery Tools
7.Systems capacity: Do the flows of information, money and managerial decisions function in a timely and effective manner? Can purchases be made without lengthy delays for	Governance Information

[28] Potter, C and Brough, B. Systemic capacity building: a hierarchy of needs. *Health Policy and Planning*. 19(5): 336–345

[29] Filmer D, Hammer JS, Pritchett LH. *Weak links in the chain, a diagnosis of health policy in poor countries.* World bank Research Observer 15: 199-224.

[30] For further reading on capacity assessment, see *ADHS manual* Module 8, page 243.

authorization? Are proper filing and information systems in use? Are staff transferred without reference to local managers' wishes? Can private sector services be contracted as required? Is there good communication with the community? Are there sufficient links with CBOs/NGOs?	
8. Structural capacity: Are there decision-making forums where inter-sectoral discussion may occur and corporate decisions made, records kept and individuals called to account for non-performance?	Governance
Role capacity: This applies to individuals, to teams and to structure such as committees. Have they been given the authority and responsibility to make the decisions essential to effective performance, whether regarding schedules, money, staff appointments, etc?	Governance Financing

DISASTER RISK REDUCTION

The recovery phase poses opportunities to integrate or strengthen the existing national disaster risk management programme for the health sector in coordination with the national disaster management authority and other critical sectors.[31, 32] It can be used to scale-up existing health systems to manage emergencies and to protect and increase the resilience of the health systems and communities. While the PDNA itself can not do an in-depth assessment of disaster preparedness capacity and plans for disaster risk reduction, the recovery framework can plan for such further analysis and include a budget to address obvious gaps.[33] Examples of Disaster Risk Reduction (DRR) and preparedness interventions that can be used for the PDNA recovery plan can be found in *Annex 6*.

The PDNA analysis should look at the root causes of disaster including the vulnerability of assets, sectors and community to all hazards. A healthy population is more productive and likely to be less vulnerable to disaster resulting from natural hazards.[34] For example, flood related water and sanitation problems and waterborne diseases affected more than 140 million people in floods in 2007. Malaria, cholera, tuberculosis, HIV/AIDS and diarrhoea exacerbate disaster risks.

For the health sector, the vulnerability of assets refers particularly to health facilities, especially hospitals, which ideally should be accessible and functioning, at maximum capacity, immediately after a hazard strikes.[35] The recovery framework therefore has to envision the construction of disaster safe hospitals ensuring the physical and functional integrity of health hospitals and facilities in emergency conditions, to protect the life of the occupants, patients and staff, to ensure that the hospital is functioning when it's most needed after a disaster, and also to protect the investment.[36] In order to integrate risk concerns already in the design of the health facilities, an understanding of the kinds of hazards that affect the vulnerability of health facilities is required. To plan for additional costs of safe hospitals, the following estimates are used (WB 2009):[37]

Disaster resilient construction in new building:	*4-8% of original cost*
Retrofitting of existing building:	*20-25% of original cost*

Health facility safety is not limited to disaster resilient buildings. Not only must the buildings remain standing after a disaster, but the facility must remain fully functional. A comprehensive recovery plan for the health facility will encompass not only disaster resilience of buildings, but also focus on emergency preparedness at the level of the health facility, including response planning, training of health facility staff and conducting simulations of the plans. The action of individual hospitals should be integrated into a national programme to make hospitals safer and prepared for disasters.

Examples of interventions of safe hospital programmes that can be used for the PDNA recovery plan can be found in *Annex 7*. An indicative range of the required budget for the development of a national programme on safe and prepared hospitals (not including implementation of extensive structural or non-structural measures) is as follows:

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[31] http://www.who.int/hac/techguidance/preparedness/en/index.html
[32] United Nations Development Group 2009. *Integrating disaster risk reduction into the CCA and UNDAF. Guidance note for UN country teams*.
[33] See for further information: *Health sector self-assessment tool for disaster risk reduction*: Washington, D.C.: PAHO, 2010
[34] *Guidance Note for integration of disaster risk reduction in bank projects in the health sector*. 16 March 2009, Work in progress:
[35] http://www.unisdr.org/eng/public_aware/world_camp/2008-2009/wdrc-2008-2009.html
[36] http://new.paho.org/disasters/index.php?option=com_content&task=view&id=967&Itemid=911
[37] http://new.paho.org/disasters/index.php?option=com_content&task=blogcategory&id=1026&Itemid=911%20

Risk assessment, including social economic assessment	$50,000 - $200, 000
Rapid assessment of safety of health facilities	$50,000 - $200,000 per annum
Development and implementation of a national Safe Hospitals programme	$100,000 - $500,000 per annum
Training and capacity development	$30,000 - $100,000 per annum
TOTAL	$230,000- $1million

BUILDING BACK BETTER: SCOPE AND CHALLENGES

The objective for recovery and reconstruction should be building the health sector back better. This means the system will have safer infrastructure, be prepared for key public health hazards and future disasters, and provide equitable and affordable services to all;[38] Health services need to be accessible and of adequate quality to address the changed health needs resulting from the disaster while restoring the health system in such a way that it will be back on the developmental level where it would have been had the disaster not taken place. The recovery framework should ensure an appropriate, sustainable health system, and strengthen disaster preparedness and management capacity to deal with future crises, and instituting vulnerability and risk reduction measures.[39] The challenge is to find the right balance in restoring the system to its previous level and how much better it needs to be rebuilt. This will depend on the status of development of a country and what a country can afford to sustain.

The post-disaster period offers important, but not unlimited and often short windows of, opportunities for health sector reform.[40] The enthusiasm for reconstruction may be high, the generosity of donors considerable, and resistance to change reduced.

First, it is better that the reconstruction addresses key issues currently faced by the health sector such as health financing to reduce out-of-pocket expenditure by the disaster affected population and provide better health service insurance coverage, benefits, and
accessibility to the poor and other vulnerable population sub-groups.

Second, the future health system should be designed to be prepared for and responsive to all major hazards in the future. The building standards and codes for disaster prone zones are critical. Hospitals need to be constructed to higher standards to ensure their integrity and functionality when another disaster hits. Risk based and all-hazard approach for emergency preparedness and response should be practiced.

Third, the existing health system in the affected areas may need to be rationalized and streamlined to meet the changed needs because of different population profiles and epidemiology. Duplications in the public health system can be reduced.

Significant pre-disaster constraints in the performance of the health system need to be taken into account, and planning for recovery should include further analysis to address these where relevant. However, stakeholders involved in PDNAs need to be cautious with the 'window of opportunity' to introduce institutional and regulatory reforms or to aim for significant improvements in short periods to attain health MDGs. The need for reform needs to be balanced with what can be practically achieved in the context of a disaster recovery framework. There can be high expectations, but there is limited evidence that major reforms in such context works. Furthermore, there are risks of being encouraged to introduce new policy approaches by international consultants or influential donors, that may not be appropriate or realistic for that context.

Following a sudden-onset disaster, the strengthening or re-building of local health systems can be initiated from day one by designing and implementing all emergency health programmes in ways

[38] World Bank Good Practice Notes 1 Health July 2008
[39] See for further reference: Health Cluster Guide, a practical guide for country level implementation of the health cluster. http://www.who.int/hac/network/global_health_cluster/guide/en/index.html
[40] *World Bank Good Practice Notes* 1 ***Health*** *July 2008*

that contribute to that objective. There is not always a clear distinction between humanitarian and recovery health interventions. As soon as the immediate needs are addressed, other activities that aim to restore or where possible improve pre-existing health services become possible and should be undertaken. Those recovery activities should already take place in parallel to the humanitarian relief phase and will continue in the period thereafter. For example, in the acute phase, priority will be to re-establish the delivery of life saving health services, and over time, minimum initial packages should be expanded towards more comprehensive services.

An essential element of post disaster recovery is to ensure that the humanitarian response and its coordination are linked to national disaster management mechanisms. Major disasters are characterized by the fact that humanitarian agencies assume significant direct responsibility in re-establishing service delivery. Sometimes according to standards that are higher than what existed before and that maybe unsustainable. A main objective for recovery and reconstruction is to ensure that the capacities of the local and national health authorities are strengthened so they resume their full responsibility to manage service delivery.

Costing estimates for recovery and reconstruction include the costs required to repair or replace damaged infrastructure and costs to compensate losses. Additionally, funding is required for re-establishing essential services, support to governance and management capacity, and to address crucial issues as access and quality in the context of possibly increased morbidity and lower purchasing power. The total financial budget should take into account the existing total health expenditures and absorption capacity of the health sector so that it is realistic. The difference between the cost of the losses and the cost of the proposed response should not become too large. For post disaster donor pledging conferences the development partners are accustomed to look at the size of the losses and pledge accordingly.

LINKS TO OTHER SECTORS AND CROSS CUTTING ISSUES

Inter sectoral discussions should take place prior to the design phase of any assessment or more generally any data collection or analysis exercise. Standards should be discussed and agreed upon, particularly on key dimensions such as administrative boundaries, place names and some of their key attributes such as demographics, which will provide a solid basis for data comparability and therefore cross sectoral analysis. Several other sectors are considered as determinants of health: Environmental health (including hygiene, water and sanitation), nutrition and food-security, shelter and education. The social determinants of health include the conditions in which people are born, grow, live, work and age.[41]

Cross cutting issues relevant for health include the status of children, pregnant and lactating women, the elderly, persons with disabilities and persons living with long-term or chronic illnesses such as HIV/AIDS. In addition there are also social determinants to be considered that could lead to increased vulnerability. These usually include poverty, ethnicity and religion.

Key indicators and sample survey questions for obtaining information at health facility, household and/or community level should at least be *disaggregated by sex and ag*e and a gender analysis applied.[42]

Gender & Age: In disaster situations, women and men, boys and girls are affected differently. Available data suggest that there is a pattern of gender differentiation at all levels of the disaster process: exposure to risk, risk perception, preparedness, response, physical impact, psychological impact, recovery and reconstruction.

Due to social norms and their interaction with biological factors, women and children-particularly girls- may face increased risk to adverse health effects and violence. They may be unable to access assistance safely and/or to make their needs known. Additionally, women are insufficiently included in community consultation and decision-making processes, resulting in their needs not being met.

Different age groups will also be affected differently and will have different needs. Older people can be particularly vulnerable, 71% of those who died in the wake of Hurricane Katrina in 2005 were 60 years and older.[43] Older age can result in decreased mobility, sight, hearing and muscle strength, as well as in greater vulnerability to heat and cold. Chronic diseases common to older age, such as coronary heart disease, hypertension, diabetes and respiratory diseases, can worsen without adequate routine assessment and medication.

In extremely high HIV prevalence contexts, such as Sub-Saharan Africa, the AIDS pandemic has significant humanitarian and recovery implications. Research indicates that households affected by AIDS are more likely to be resource-poor, have children not attending school and to be headed by females. The assessment needs to take into account the existing level of HIV-related vulnerability, and how this may be exacerbated during an emergency, as people living with HIV (PLHIV) and their households may have only limited access to basic services, commodities and medicines; and may also have limited options for coping with the emergency. Crises can have a

[41] WHO Commission on Social Determinants of Health, 2008: http://www.who.int/social_determinants/en/
[42] see http://www.who.int/gender/whatisgender/en/index.html for difference between sex and gender
[43] IASC 2008. Humanitarian Action and Older Persons. An essential brief for humanitarian actors

significant impact on HIV related vulnerability in two ways: heightened risk of exposure to HIV infection and increased vulnerability of PLHIV or those affected by HIV.[44]

Health as human right:[45] The assessment and recovery framework should be positioned in a rights based approach. The most authoritative interpretation of the right to health is outlined in Article 12 of the International Covenant on Economic, Social and Cultural Rights, which has been ratified by 145 countries as of May 2002. In May 2000, the Committee on Economic, Social and Cultural Rights adopted a General Comment on the right to health. The General Comment sets out four criteria by which to evaluate the right to health (Comment 14):[46] (1) Availability, (2) Accessibility (3) Acceptability: and (4) Quality

Contribution to peace-building and stability: Where relevant, the recovery health strategy should promote the Primary Health Care principles of equity, solidarity and social justice, as this contributes to the creation of conditions for stability, hope and peace. Where applicable, recovery plans need to include prevention of and response to Sexual and Gender based Violence. For further reading, see also the Health as a Bridge for Peace framework which supports health workers in delivering health programmes in conflict and post-conflict situations and contribute to peace-building.[47]

[44] IASC Guidelines for Addressing HIV in Humanitarian Settings, March 2010 http://www.who.int/hac/network/interagency/iasc_hiv_guidelines_2010_eng.pdf
[45] WHO (2002), *25 Questions and Answers on Health and Human Rights.* http://www.who.int/hhr.
[46] CESCR General comment 14, 11 August 2000, U.N. Doc. E/C.12/2000/4
[47] http://www.who.int/hac/techguidance/hbp/en/index.html

RESPONSE OPTIONS ANALYSIS FOR RECOVERY

There is no blueprint for the recovery planning. The depth of analysis will be limited, largely due to time constraints. The PDNA can identify issues that need to be assessed and analysed in further detail before making policy and planning choices. This includes for example more detailed facility assessments using the hospital safety index, reviewing and rationalizing the health network in case of major population movements, policy issues as human resource production and distribution, or health financing to address reduced capacity to pay. Possible policy responses need to be based on an analysis of main constraints in the health system.[48] Table 2 and Annex 1 include examples of typical responses, as distilled from previous PDNAs.

The reconstruction and recovery strategy of the PDNA generally include:[49]

a. designing an overall approach and key principles for reconstruction strategy;
b. understanding access to primary and secondary health care services by different groups;
c. targeting populations with special needs;
d. designing detailed needs assessment and mapping of vulnerable populations;
e. understanding the current coordination within the health sector and between different sectors, both development and humanitarian coordination;
f. understanding the capacity of the health sector, its financing and healthcare workforce;
g. assessing health promotion and disease prevention efforts;
h. examining and designing hazard-safe health care facilities.

The key principles for recovery and reconstruction of the health sector should include:

- **Equity**: Expansion of service provision to underserved areas, the poor and vulnerable population;
- **Effectiveness**: Increasing the access to and quality of key services;
- **Appropriateness**: Adoption of new service delivery models to respond to new health needs if the previous system was outdated; and
- **Efficiency**: Greater overall efficiency with savings used to finance some of these measures.

PDNAs usually distinguish a phased approach:[50] A transitional strategy to bridge between the humanitarian emergency phase, early recovery and the reconstruction phase is needed. The humanitarian and early recovery phase should ensure access to an essential health care package and public health programmes that reduce vulnerabilities and save lives. The reconstruction phase needs to restore and further develop service packages, ensure that the medium- to longer-term health consequences of the disaster are addressed, and build the health system back better.

Humanitarian and early recovery Phase: The most urgent need is to ensure access to an essential health care package and public health programmes that reduce vulnerabilities and saves lives. PHC services should be easily accessible in situ and at the temporary resettlement sites where people live while secondary care services can be provided at appropriate sites. Health facilities in areas that receive significant numbers of internally displaced populations need to be strengthened to cope with the increased number of patients. Early warning alert and response

[48] *Analysing disrupted health sectors*, Module 12: Formulating strategies for the recovery of a disrupted health sector, and annex 13, pages 382-385. http://www.who.int/hac/techguidance/tools/disrupted_sectors/en/index.html
[49] World Bank Good Practice Notes 1 *Health* July 2008.
[50] Adapted from World Bank Good Practice Notes 1 HEALTH July 2008.

system for epidemics or any other public health emergency prevention should be revitalized and strengthened. It is imperative to make sure that (a) the poor and (new) vulnerable groups have access to free health care; (b) emerging mental health problems are addressed properly; (c) the package of health services takes into account the needs of disabled people; (d) patients that were on chronic treatment are traced and treatment continued; (e) Sexual and Reproductive Health services are made available, in particular for pregnant women. (f) Risks of future events which could affect the recovery and reconstruction should be assessed, response plans should be reviewed and updated, and any immediate priority preparedness actions should be implemented.

Medium and Long Term Recovery and Reconstruction Phase: Broader health system issues such as utilization and quality of health services should be addressed in this phase. Risk assessments, including hazard, vulnerability and capacity assessments should be conducted to inform future action. Measures to strengthen the health emergency and disaster risk management capacities in the country should be planned for. Establishment of new hospitals, health centres and public health institutions should be rationalized to reduce redundancy. When rebuilding and/or repairing health facilities, the safe hospital approach should be applied.

Discontinued health care services to the affected populations should be gradually revitalized in this phase. Special attention should be given to mental health, disabilities, Sexual and reproductive health, prevention and control of non communicable diseases, and services for vulnerable groups, and other health issues that threaten progress on key health development objectives, such as are specified in national development plans or the MDGs. Financing mechanism need to be designed and implemented to reduce financial barriers to access essential health services at times when it is likely that the affected population is less able to pay due to livelihoods lost, and to protect people against the catastrophic costs of health care in a post-crisis era. Competencies and capacity of health workers need to take into account new vulnerable groups and changes in demand for health care. Where appropriate, capacities of the health authorities needs to be further assessed and strengthened where needed, in particular for management and governance roles. When NGOs and CBOs played a significant role in the disaster response, their capacities need to be used for the recovery process, for example through contracting approaches.

Annex 1: Overview of health impact of types of disasters and response options

Disaster Type	Impact on Public Health	Humanitarian and Early Recovery Health Priorities	Recovery & Reconstruction Priorities
Epidemics Environmental Pollution	– Immediate increased risk of death, illness and disability – risk of infection or contamination for relief personnel – (long term) exposure of public to toxic substances – overload of facilities and services – rumours – diversion of resources	– confirm the problem – identify and confirm the cause – issue guidelines, educate staff and mobilize resources – case diagnosis, case confirmation, patient care, case treatment and referral – activation of surveillance and monitoring systems to monitor – caseload, case – fatality rates, morbidity and mortality – prevent spread – protect staff and facilities – care of the dead – public information, dealing with the media and international aid	– health education, public awareness, public information and community involvement – documentation and analysis of the incident – social services for the affected groups
Storm Earthquake Volcano Flood Landslide Tsunami Fire Explosion Accidents	– immediate increased risk of death, physical and mental illness and disability; mass casualties and injuries, possible environmental pollution – (long term) exposure of public to toxic substances – damage to or loss of essential life support services - water, food, shelter, displacement of population – breakdown in security – breakdown in communications networks and information flows – damage to and loss of facilities, services and staff – high levels of psychosocial stress	– search and rescue, triage, first aid, medical evacuation, hospital emergency care – protect staff and facilities – activate mass casualty management plans – activation of surveillance and monitoring systems for injury, disease, nutritional status, water quality and disability – special services for the homeless and displaced - water, food, shelter, health, security – stress management; – care of the dead – public information, dealing with the media and international aid	– health education, public awareness, public information and community involvement – documentation and analysis of the incident – health and mental health services – infrastructure demolition, repair and replacement – economic regeneration
Drought Famine Pests Plagues Infestations	– long term risk of increased morbidity and mortality – breakdown in food security – population displacement – high levels of psychosocial stress – exposure to toxic substances (chemical sprays)	– reinforcement of essential services – activation of surveillance and monitoring systems for disease, nutritional status and water quality – special services for the homeless and displaced - water, food, shelter, health, security – stress management – care of the dead – public information, dealing with the media and international aid	– health education, public awareness, public information and community involvement – documentation and analysis of the incident – health and mental health services – economic regeneration

Annex 2: Format for assessment of loss in the health sector

Loss per component	Months after the disaster																		Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Duration of recovery period, months																			
A. Loss of revenues																			
1. Pre-disaster number of patients																			
2. Post-disaster number of patients																			
3. Lower number of patients, post disaster (1 - 2)																			
4. Average revenue per patient, $/patient																			
5. Loss of revenue, $ (3 * 4)																			
B. Costs of increased services																			
6. Increased cost of medical treatment of injured during emergency stage, $*																			
7. Transportation cost of injured to available facilities, $																			
8. Increased cost of medical treatment in higher cost, private facilities, $																			
9. Increased cost of disease surveillance after disaster, $																			
10. Increased cost of disease prevention campaigns, $																			
11. Increased cost of vector control campaigns, $																			
12. Cost for long-term medical and psychological treatment, $																			
13. Total increase in costs, $ (6 + 7 + 8 + 9 + 10 + 11 + 12)																			
C. Other losses																			
14. Costs for demolition and clearing of debris																			
15. Costs for reinforcements of infrastructure																			
16. Costs of displacement																			
Total losses (5 + 13 + 14 + 15 + 16)																			

* Arising as a result of increased patient load

Annex 3: Steps for the PDNA process

1. When a disaster occurs:

- Start collecting baseline information: can be done in country, as well as remotely `off site`, and start filling in relevant information in the analytical matrix.

    - Establish database of pre-existing health facilities
    - Start collecting information on functionality/damage of health facilities
    - Start collecting information on disease trends, and interventions done to mitigate health consequences of the disaster
    - Collect relevant reports that describe the health system and its performance
    - Prepare sending health recovery expert(s) to assist the country

2. When the PDNA is requested by government:

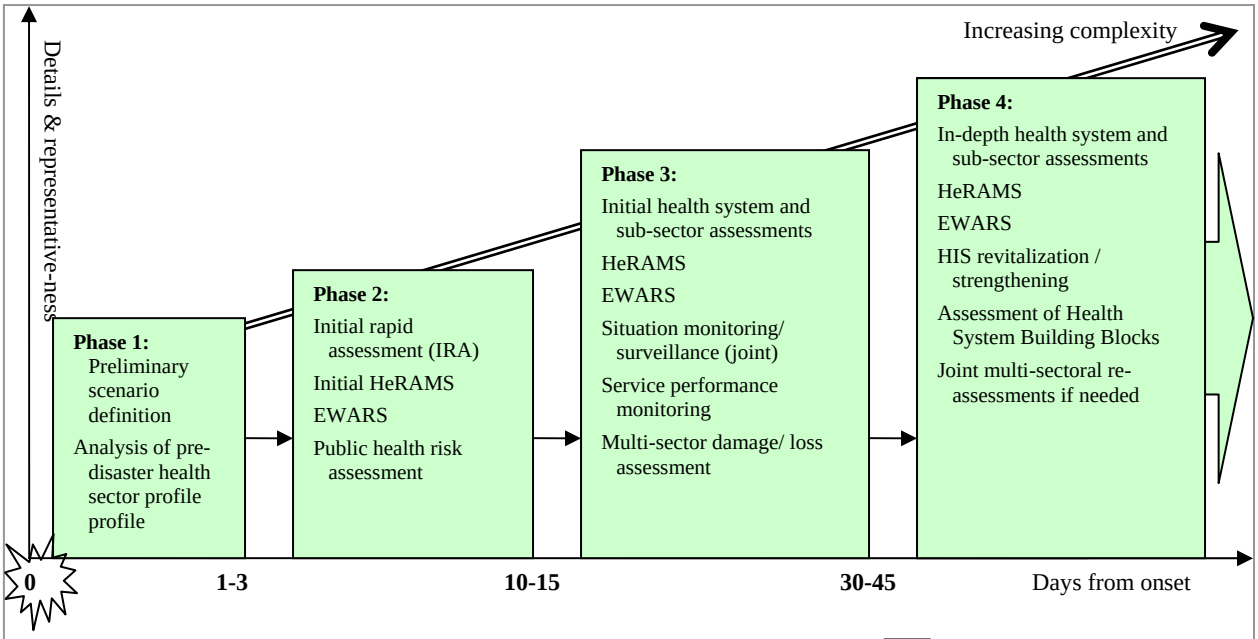
- Government to appoint Focal Points in the respective ministries that will be included in the PDNA

    - WB-EU-WHO Health experts to liaise with MoH FP,
    - Prepare for the training of the health component of the PDNA as part of the usual 1-2 day workshop on PDNA to formally initiate the PDNA and train relevant stakeholders
    - Call for a meeting with health development partners, identify key stakeholders that can assist in the assessment
    - Establish Steering Committee to oversee the health assessment and divide tasks
    - Present PDNA to the humanitarian health coordination, identify NGOs with an interest and capacity to support the recovery process.
    - Develop time schedule, according to the overall deadlines of the PDNA, including for example
        - site visits to verify reports of damages
        - workshops or Focus Group Discussions to analyse performance of health system functions
        - regular meetings with the Steering Committee
        - engagement with other sectors and cross cutting topics
        - validation workshop of first draft

- Assist the MoH to prepare for the donor conference when this is organized
    - Meetings with donors and government, to advocate for the importance of health in the recovery framework

- Inclusion of the MoH in the governing structures to manage the allocation of funds to and/or within the health sector.

Annex 4: Different disaster phases and assessment approaches



Phase 1 *(0-3 days)*	**Phase 2** *(4-10/15 days)*	**Phase 3** (15-30/45 days)	PDNA	**Phase 4** (30/45 + days)
Assessment methods				
Expert interpretation of initial reports & remote data Analysis of pre-disaster baseline data Review of disaster preparedness and contingency plans Few site visits	Rapid appraisal methods only (KI & FGD) Purposive sampling Public health risk assessment Analysis of disaster impact on health system functions	Household level survey + rapid appraisal methods Representative sampling Facility Based Reporting		Household level survey + rapid appraisal methods Representative sampling In Depths Assessments Assessment of Health Syst. Building Blocks performance Facility Based Reporting HIS incl. District (Admin. Unit) reporting
↓ **Information outputs**				↓
Preliminary working scenario	Initial analysis of main health problems, risks, health system key challenges and gaps – initial planning scenario	Comprehensive analyses of problems, risks and gaps – updated planning scenario Response options to address key challenges in Health System functions		Up-dated analyses and planning scenario Identification of opportunities for Early Recovery *(ongoing, regular)*
↓ **Use of the information**				↓
Preliminary health crisis response strategy (for response in the first few days) Flash appeal	Initial health crisis response strategy Adjustment of initial responses Specific project proposals Revised flash appeal	Detailed health crisis response strategy Refinement of ongoing projects Additional project proposals Consolidated appeal Recovery proposals		Up-dated health crisis response strategy, projects and appeals Early Recovery strategy Recovery Framework

Annex 5: Assessment and analysis tools by health system building block

	Assessment and Analysis Tools
Integrated Health System Performance Assessment and Analysis	Guidelines for the preparation of the health services system profile in the countries of the region. Program of Organization and Management of Health Systems Based on Primary Health Care Division of Health Systems and Services Development Pan American Health
	Pavignani E, Colombo A. *Analysing disrupted health sectors. A modular manual*. World Health Organization, 2009. http://www.who.int/hac/techguidance/tools/disrupted_sectors/en/index.html
	Islam, M., ed. *Health systems assessment approach: a how-to manual*. Submitted to the U.S. Agency for International Development in collaboration with Health Systems 20/20, Partners for Health Reformplus, Quality Assurance Project, and Rational Pharma, 2007.
	Toolkit for monitoring health systems strengthening, DRAFT version: only for review and comments. http://www.who.int/healthinfo/statistics/toolkit_hss/en/index.html
Governance	*Toolkit on monitoring health systems strengthening*. Health Systems Governance. http://www.who.int/healthinfo/statistics/toolkit_hss/EN_PDF_Toolkit_HSS_Governance.pdf
	International Health Partnership. *Joint assessment of national health strategies and plans*. Combined Joint Assessment Tool and Guidelines Draft July 2009. http://www.internationalhealthpartnership.net/en/about/j_1253621551
Human Resources for Health (HRH)	Smith J. *Guide to health workforce development in post-conflict environments*. World Health Organization, 2005.
	Handbook on monitoring and evaluation of human resources for health, with special applications in low- and middle-income countries; Editors: Mario R Dal Poz, Neeru Gupta, Estelle Quain and Agnes LB Souca.
	Toolkit on monitoring health systems strengthening. Human Resources for Health. http://www.who.int/healthinfo/statistics/toolkit_hss/EN_PDF_Toolkit_HSS_HumanResources_oct08.pdf
	Tools and guidelines for human resources for health situation analysis: http://www.who.int/hrh/tools/situation_analysis/en/index.html
	Tools and guidelines for human resources for health planning: http://www.who.int/hrh/tools/planning/en/index.html
	Tools and guidelines for human resources for health management systems: http://www.who.int/hrh/tools/management/en/index.html
Pharmaceuticals and Health Technology	*Guidelines for drug donations*. 2nd edition. World Health Organization, 1999.
	Using indicators to measure country pharmaceutical situations. Fact book on WHO level 1 and level II monitoring indicators. WHO/TCM/2006.2
	Blood safety indicators. World Health Organization, 2008. WHO/EHT/08.01
	Health technology assessment, check with EHT
	Toolkit on monitoring health systems strengthening. Medical Products, Vaccines and Technologies. http://www.who.int/healthinfo/statistics/toolkit_hss/EN_PDF_Toolkit_HSS_MedicalProducts.pdf
Financing	Health expenditure surveys
	Toolkit on monitoring health systems strengthening. Health Systems Financing. http://www.who.int/healthinfo/statistics/toolkit_hss/EN_PDF_Toolkit_HSS_Financing.pdf
	Country health expenditures database: http://www.who.int/nha
	Kutzin J. A descriptive framework for country-level analysis of health care financing arrangements. *Health Policy*, 2001, 56:171–204. http://www.journals.elsevierhealth.com/periodicals/heap/article/PIIS0168851000001494
Health Information System (HIS)	Health Metrics Network. *Assessing the national health information system. An assessment tool*. World Health Organization, 2008, VERSION 4.00
	Toolkit on monitoring health systems strengthening. Health Information Systems. http://www.who.int/healthinfo/statistics/toolkit_hss/EN_PDF_Toolkit_HSS_InformationSystems.pdf
Health Services	*Assessment of public health risks interventions*. http://www.who.int/diseasecontrol_emergencies/publications/who_hse_gar_dce_2010_1/en/index.html
	Toolkit on monitoring health systems strengthening. Service Delivery, WHO June 2008. http://www.who.int/healthinfo/statistics/toolkit_hss/EN_PDF_Toolkit_HSS_ServiceDelivery.pdf

Annex 6: Examples of DRR and preparedness interventions

- Integration of emergency and disaster management into legislative frameworks, policies and plans
- A multidisciplinary unit in the MoH with authority, capacity and resources to provide coordination of health emergency management activities at all levels within the health sector and with other sectors
- Risk assessments including hazard identification and vulnerability (population and health systems vulnerabilities) and capacity assessments in collaboration with the multi-sectoral disaster management authority
- National capacity development programme for health emergency and disaster risk management with necessary resources.
- Health sector capacity to conduct risk awareness campaigns including health education, heath promotion and social mobilization to reduce risks and prepare to respond to emergencies
- All hazards early warning systems which takes account of risk to public health and to the health sector.
- Integration of disaster and emergency risk management into undergraduate, graduate and professional education of health and other relevant human resources for health and other sectors.
- Programmes to reduce underlying risk factors (such as improving the safety and preparedness of health facilities)
- Risk reduction and preparedness programmes for epidemic/pandemic disease prevention and control , reproductive health, mass casualty management systems, nutrition, environmental health, mental health and other non communicable diseases, maternal and child health and management of the dead and missing
- Health sector response and recovery planning and other elements of the preparedness programme, including pre-positioning of supplies and exercises to test plans, with other sectors.

Annex 7: Examples of interventions of safe hospital programmes

- Development of comprehensive national policies as well as specific policies focusing on building safety and emergency preparedness of health facilities and staff.
- Coordination of programmes related to the safety of health facilities and emergency preparedness in the ministry of health, other health agencies, emergency services and civil protection organizations and other sectors, such as water, power, transport and communications.
- Ensuring development proposals and plans for all new health facilities include hazard and vulnerability assessments.
- Assessment of existing health facilities to identify the priorities for retrofitting and other action (e.g., by using the Hospital Safety Index).
- Implementation of independent mechanisms to control and supervise infrastructure projects, such as by involving qualified professionals to work with a project team.
- Development and application of comprehensive and integrated system design, including land-use planning, architectural design, and building codes standards for the development and maintenance of health facilities.
- Guidance and promotion of best practice for:
    - assessment and maintenance of safety of health facilities before and after disasters, including structural, non-structural and functional safety;
    - emergency preparedness programmes in health facilities;
    - multi-task training to manage basic life-saving emergency and surgical interventions;
    - development of safe and resilient health facilities in safe locations;
    - retrofitting and reconstruction of existing vulnerable facilities;
    - safe working environments for health workers;
    - safe infrastructure for health facilities, including continuity of essential services for power, water and waste disposal, and of medical and health supplies of during times of emergency.
- Development and delivery of training courses in safety and emergency preparedness in undergraduate, graduate and continuing professional courses, for construction, health and other sectors.
- Case study development and promotion of good practice in safety and emergency preparedness of health facilities.