



Community Resilience in Disasters

How the Primary Health Care
approach made a difference in
recent emergencies in the
WHO South-East Asia Region



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Regional Office for South-East Asia

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Introduction

According to the Alma Ata Declaration of 1978, primary health care (PHC) is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community with their full participation. PHC upholds the values of equity and social justice and operates on the basis of four pillars, namely (i) universal coverage/equity, (ii) community participation, (iii) intersectoral collaboration, and (iv) use of appropriate technology. The eight essential elements of PHC include: (a) safe water and sanitation; (b) food and nutrition; (c) maternal and child health; (d) immunizations; (e) curative care (f) essential drugs; (g) health education; (h) traditional medicine; and (i) community development.

The concept of primary health care is particularly relevant in the WHO South-East Asia Region as health development in this part of the world remains a challenge given the background of the Region's vulnerability to emergencies.

An emergency poses a threat to both public safety and public health, and such situations turn into disasters when humanitarian needs exceed the local institutional capacity to meet them. When disasters occur, people are injured and displaced, losing not only their homes but their bearings in life. They are then at their most vulnerable. This is when it is crucial that they have equitable access to essential health services and are provided their basic rights such as the right to food, water and shelter. Yet, very often external assistance takes time to arrive and the community is left to itself during those first crucial hours and days. They can be empowered to help themselves during disasters through training, building awareness of the risks, and by establishing resilient health services and institutions at the community level.

These articles look at how the concept of primary health care has been applied and how it has worked in previous emergencies in the WHO South-East Asia Region. It provides snapshots of how communities can be more resilient in the protection and promotion of health in emergency situations.

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Helping themselves: The people's initial response

Tsunami in Thailand

When the tsunami of 26 December 2004 struck six provinces in Thailand, the widespread damage rendered Phuket airport, the key airport for that area, non-functional for eight hours. In the critical hours immediately after the disaster, therefore, the affected people were the first to respond, using whatever tools they had.

A family of tourists, including a doctor, was at a hotel away from the waterfront in Phuket. On the fateful day, their sleep was interrupted by severe jolting and shaking caused by an earthquake. Two hours later, they witnessed a large number of people in a state of panic, heard a few explosions and saw a huge jet of water that flooded the road in front of the hotel. They were on their way back to their hotel when another wave much larger than the first arrived. The ground floor of the hotel was completely flooded.



Minutes later the doctor and his wife got busy dealing with injured people who started to crowd the hotel lobby. They used sheets to stop bleeding, broken furniture as splints for fractures, and bottled water to clean the contaminated wounds. They provided resuscitation without the aid of any equipment. After providing first aid to the injured people in his hotel, the doctor moved to another waterfront hotel to assist with the severely injured there, some with penetrating wounds and crush injuries.

In the villages too, the community responded quickly. Fortunately, Thailand's health system has an extensive network of village health volunteers at its core, leading to community resilience to crises. Each volunteer, usually a respected member of the community, is trained and assigned a fixed number of families in the village to work with to promote basic health, including mental health. In the rural areas, therefore, village health volunteers played a crucial supporting role to their community in the chaos and shock that was the immediate aftermath of the disaster, including providing medication as well as psychosocial support till mobile medical teams arrived. Thus, even without proper equipment and supplies, they were able to offer first aid to victims and save lives before external help arrived.

They used sheets to stop bleeding, broken furniture as splints for fractures, and bottled water to clean the contaminated wounds. They provided resuscitation without the aid of any equipment.

Cyclone Nargis in Myanmar

Following the terrible trail of devastation left by Cyclone Nargis in Myanmar on 2-3 May 2008, local people including monks participated in clearing the roads and the debris themselves. Many people whose houses were destroyed took shelter in those local monasteries that had survived the cyclone and assisted in the proper disposal of the dead. With water and food scarce, locals shared what was available in order to survive till help arrived.

Temples were used as evacuation centres and collection points for relief goods and information. Monks distributed timber and some other supplies to the affected.

Dozens of local Red Cross volunteers from the Myanmar Red Cross Society (MRCS) played a vital role in the rescue efforts despite of the fact that many of them had lost their homes in the cyclone too. Four or five volunteers gave basic first aid to 200 people a day, and at the end of the day they had no home to go back to for rest.

Four or five volunteers gave basic first aid to 200 people a day, and at the end of the day they had no home to go back to and rest.

These examples show how the affected community is often the first to respond immediately after a disaster to save lives with whatever means they have at their disposal before external help arrives. Building local community resilience is, therefore, crucial to minimize the impact of disasters.

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The value of traditional wisdom and modern awareness

In most of the places that were devastated by the tsunami on 26 December 2004 the first tell-tale signs, i.e. the receding of sea waters, initially evoked more curiosity than concern. Few people knew what it meant. Many even ran excitedly towards the sea to explore the exposed seabed. Yet in places where the people understood the phenomenon, either from tales passed down orally over generations or in the modern-day geography classroom, many lives were saved.

In Thailand's Surin Islands, Moken (a sea gypsy community) elders observed the bay waters receding and remembered the "story of giant waves" which is supposed to occur "about every 250 years after the ground shakes (i.e. earthquake)". Half the existing Moken community was below the age of 18, and the entire community had never experienced a tsunami. However, generations of Moken had passed along stories about a Laboon or "God of Waves" that devoured people, and about a day in the past when the sea had reared back and then returned as a giant wave. Thanks to their

Generations of Moken had passed along stories about a Laboon or "God of Waves" that devoured people... Thanks to their knowledge of the legend and their keen observation of the sea that day, the community recognized the danger immediately and reached the safety of higher ground in the surrounding hills.

knowledge of the legend and their keen observation of the sea that day, the community recognized the danger immediately and reached the safety of higher ground in the surrounding hills. Minutes later their village was totally destroyed but of the 200 residents only one died; he was crippled and had got left behind in the confusion.

In Maikhao beach, a 10-year old schoolgirl, Tilly Smith, saw "the water bubbling right on the edge of the beach and foam sizzling like a frying pan". She instantly knew what it meant; she had learnt about tsunamis at a geography lesson only weeks earlier. Now her classroom lessons were unfolding into horrifying reality. She warned her parents and other beachgoers. An alarm was sounded and the beach was evacuated seconds before the tsunami arrived. Her knowledge and action saved more than 100 lives.

Although the present generation of the community did not have any previous direct experience of the disaster, deep-rooted traditional knowledge as well as modern-day lessons made them aware of the danger and saved their lives.

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Making Nepal's Patan Hospital disaster-resilient

Nepal is at a very high risk of earthquakes, and a risk assessment of Kathmandu Valley had revealed that if an earthquake as great as the 1934 quake with a magnitude of 8.4 on the Richter Scale struck the country today, it could lead to at least 100 000 casualties requiring hospitalization. Would Nepal's hospitals be able to cope in such a situation? An assessment of 14 hospitals in Nepal in 2001 followed by a rigorous assessment of the Patan Hospital in Kathmandu Valley revealed that a major earthquake would render the hospital non-functional on account of structural and non-structural damage.

The recommendations included, in addition to retrofitting, the strengthening of critical systems and ensuring their back-up mechanisms, such as for power generators and water supply, as well as training of hospital personnel. It called for a response scenario that can handle at least 200 casualties.

Patan was one of the first hospitals in the country to draft a hospital emergency plan which has been implemented through mass casualty mock drills, simulated rescue chain from the incident site to the hospital wards, and the involvement of host communities and community-based organizations.

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Engineering measures were also adopted to reduce seismic risks. Rather than build an extra floor and increase the risk to a structurally weak building, a new, separate maternity wing was built. The hospital was also retrofitted

using available resources, and is now prepared for any emergency.

This illustrates that if hospitals have an emergency plan, develop close links to the communities that they serve, carry out regular training including mass casualty drills triage etc., conduct ongoing assessments and undertake appropriate physical structural alterations as a part of preparedness, they will be able to serve their communities best during a crisis.

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The importance of local capacity in responding to an emergency

In a coastal township in Tamil Nadu, India, the local disaster management representative was in church the day the tsunami struck in December 2004. Having told the members of the church congregation to seek safety for themselves, he rushed to the site by motorcycle, driving through dangerous ankle-deep water and slushy mud. On the site he found dark water, debris, dead bodies strewn around and the people crying for help. He saw trapped survivors and seriously injured people with no one to rescue them. Some were bleeding profusely; others were asphyxiated with the sea water having run into their breathing channels. Most of the buildings had collapsed and people were trapped and crushed under cement slabs and debris.

Evacuation of those injured and trapped was a big problem because of

Relief to this surge of patients was provided by a local doctor, the staff nurse, two maternity assistants and a pharmacist, with support from volunteers and a few health workers.

the breakdown of roads and other communication services. There was a severe shortage of medical personnel. There was no doctor available in the main hospital in the township where the pastor lived or in the three other hospitals in the neighbourhood. The hospital had been destroyed, the doctors were out of town and the private hospitals were closed because of the holiday.

However, there was a nurse at her home who learned of the event when the villagers brought an asphyxiated child to her. She immediately rushed to the hospital and found that it was overwhelmed by injured people. Many of the casualties had been brought there dead. All the 50 beds in the hospital had been occupied by injured patients and there were many others lying all over, both within the hospital and the surrounding areas. Relief to this surge of patients was provided by a local doctor, the staff nurse, two maternity assistants and a pharmacist, with support from volunteers and a few health workers. No external doctor could come to the hospital until 24 hours after the event. Since it was a small hospital the supply of drugs and medical equipment was very limited. However, the local private drugstore filled in to some extent.

Many of the patients with severe head or spinal injuries or asphyxiation and those who were critically ill could not be managed locally. After stabilization they were transferred to the district hospital 30 kilometers away.

The supply of drugs and medical equipment was very limited. However, the local private drugstore filled in to some extent.

The presence of some trained local resources – both human, such as local doctors, nurses, pharmacists and health workers, as well as medical and logistic, such as drugs and transport – helped save the lives of many critically injured people.

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Grassroots preparedness makes the difference in Myanmar

Labutta was worst affected area when Cyclone Nargis struck Myanmar in May 2008. This township comprises about 500 remote island villages in the Ayeyarwaddy delta, with a total population of about 350 000. Prior to the cyclone, MERLIN, an international NGO, was working on a primary health care (including water and sanitation) project which was supported by the Myanmar Ministry of Health.

The project also focused on reducing the community's vulnerability to disasters by strengthening the health system in the form of refurbishment of health facilities and bolstering the supply of basic drugs and equipment. This was being done by strengthening community-level health institutions, such as village health committees, village tract health communities, and community health workers (CHWs). Approximately 540 community health workers were given a 21-day training in conjunction with the Ministry of Health, and a quarterly supply of basic medicines was ensured. The training covered basic health care including first aid, timely referral, maternal and child health care, basic hygiene

and prevention of STIs and HIV. All CHWs were also imparted basic training on disaster preparedness, such as floods, earthquakes and storms. In addition, MERLIN had stocks of household water filters and chlorine solution needed to purify water.

The preparations for a disaster were, however, at an early stage when the cyclone struck, resulting in an unprecedented level of destruction. Although health facilities were destroyed by the cyclone, a first-aid point was immediately established in which an average of 250 patients were provided basic health care daily. Most of the cases were injury related.

Immediate local relief could be organized because of prior local presence, since it took one week for an external relief team to arrive. Out of 540 community health workers, 94 had lost their lives in the cyclone. In addition to rendering first aid and basic health care to the victims, the surviving CHWs had to deal with their own family problems relating to safety, health, shelter and psychological shock. Besides the provision of health care, arrangements were made to address the use of treatment protocols, rational drug use, food security and livelihood plans in cooperation with the local communities as a part of the recovery process.

The project also focused on reducing the community's vulnerability to disasters by strengthening the health system in the form of refurbishment of health facilities and bolstering the supply of basic drugs and equipment.

Preparedness at the local level, by educating the local workforce and strengthening local institutions and working with NGOs, ensured an immediate and effective local response after the disaster.

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Role of training: The Sri Lanka experience

The first Public Health and Emergency Management in Asia and Pacific (PHEMAP) Interregional Course (developed jointly by the WHO South-East Asia and Western Pacific Regions and the Asian Disaster Preparedness Center) was organized in 2002. Since then, eight other interregional courses have been conducted. PHEMAP's goal is to strengthen national capacities for managing health risks of emergencies.

After attending this course early in 2004, a Sri Lankan graduate from the Ampara General Hospital applied this knowledge and conducted three workshops in Ampara General Hospital for staff. The course increased the participants' understanding of natural and man-made disasters, disaster management and its cycle, community participation, triage, pre-hospital casualty management and accident/emergency (A/E) care.

The following were achieved through these workshops: (a) internal and external triage for disaster management; (b) opening of a disaster management commanding centre; (c) opening of a new accident and emergency treatment unit; and (d) training of the community in dealing with disasters.

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When the tsunami struck, the Ampara General Hospital staff were aware of their duties. A total of 1015 patients were admitted to the hospital immediately after the tsunami. More than 4000 patients received treatment from the outpatient department. Of these, only 17 died in the aftermath of the tsunami.

Due to the preparedness measures put in place in advance, the hospital was well able to manage many disasters, including the 2004 tsunami.

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Bangladesh's improved disaster preparedness through an early warning system

A low-lying country on the Bay of Bengal with large areas less than 12 metres above sea-level, Bangladesh is extremely vulnerable to floods and cyclones. In 1970 the world's most devastating cyclone to date claimed approximately 500 000 lives here. Another cyclone in 1991 claimed around 140 000 lives. Taking the lessons from such disasters seriously, the Government of Bangladesh and the Bangladesh Red Crescent Society have been working since 1970 to improve the coastal warning systems and evacuation mechanisms. Since 1991, the government has also been strengthening emergency preparedness initiatives with the support of the United Nations, including WHO.

The programme was extended to 11 districts and 35 000 villages. Early warning systems were set up, shelters built along coastal areas, search and rescue teams established, first-aid training and equipment provided, and community preparedness capacity strengthened.

A corps of 32 000 village volunteers organized into local teams has formed the backbone of the effort. They are equipped with radio communication equipment, first-aid kits, rescue equipment and protective clothing. The volunteers are given three days of training in cyclone preparedness

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and refresher courses every five years. Training is also given on first aid, leadership and the use of the radio. Volunteers organize regular rehearsals and demonstrations. About 260 such events are organized each year. Communities networked through radio communication, and the network operates on a 24-hour basis to provide warning and inform the people during the emergency.

The country currently has the capacity to evacuate hundreds of thousands of people from the path of the cyclones. The warning and evacuation systems have become a part of the people's daily life.

When Sidr, a very strong, Category-4 cyclone struck Bangladesh in November 2007, the devastation it wreaked was widespread. But people had been moved to shelters and medical teams had been sent to areas at risk once the cyclone warning was given, well before the cyclone hit land. Unlike the cyclone of 1991, which was of similar strength, but had a toll of 140 000, the number of lives lost due to Cyclone Sidr was 3000.

Sustained and well-organized disaster preparedness activities ensured that the impact of the disaster to the community would be minimal.

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Cooperation among sectors improves humanitarian response

After the tsunami in Sri Lanka, rescue and life-saving activities were undertaken quite rapidly. Medical aid was accessible within hours, dead bodies were handled and relief aid mobilized. Many lives were saved as a result, and there were no outbreaks of disease. Starvation or rioting did not occur.

The success of these efforts is attributed predominantly to active response from the local and national governments, and nongovernmental organizations, also with cooperation from the army.

The importance of coordination among various sectors, highlighted during the tsunami, was applied when a major earthquake struck Yogyakarta, Indonesia, in May 2006. More than 5000 people were killed and 97 000 injured. However, good internal coordination between the Ministry of Health, and provincial and district health officers, and district hospital networks ensured that every institution played its role. The national organizational structure for disaster management in Indonesia has, at the national level, the National

Disaster Coordination Board (Bakornas PBP) chaired by the Vice-President. At the provincial level, the Governor chairs the Province Disaster Coordination Board (Satkorlak PBP), which further interacts with the District Disaster Coordination Boards (Satlak PBP) chaired by the district heads. Districts are responsible for the organization of a Health Task Force, among other task forces, including those for social services, public works and security.

The Yogyakarta response was also the first time that the Cluster Approach was followed. Health sector coordination in Yogyakarta was supported by WHO with the formation of the Health Cluster, which addresses general issues including surveillance, immunization, mental health, child health, reproductive health, nutrition, health services, health information and supplies. As a result, agencies and NGOs working on health participated in regular health cluster coordination meetings, where information on who was doing what and where was shared so that there was no duplication of effort and resources were used efficiently.

This approach is now regularly followed in any emergency. The 2009 post-conflict situation in the Northern Province of Sri Lanka was one of Asia's biggest humanitarian challenges, in which almost 300 000 people were displaced. Of these more than 100 000 internally displaced persons



arrived within 48 hours in the last days of the conflict, largely malnourished and in poor health. The numbers that arrived were far greater than estimated. The government and health agencies had to establish structures and provide food, water, shelter and medical services to this large population within days. This was probably the first time in the world that such services were provided to such a large population in such a short time frame.

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The majority of the internally displaced persons in the Northern Province were housed in the Menik farm area, which is about 400 acres. In spite of the overcrowding and the initial lack of adequate facilities, there was no major disease epidemic. This was a significant achievement. It would not have been possible without the cooperation among sectors – the government, the United Nations, international and national agencies – which worked together to ensure a smooth response.

Coordination among sectors results in a more effective response to a disaster.

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Disaster preparedness drills save lives during the West Sumatra, Indonesia earthquake

“West Sumatra is a supermarket for disasters, earthquakes and tsunamis... the system of disaster response must be perfect.” With these words in December 2007, Gamawan Fauzi, the Governor of West Sumatra, Indonesia, opened a National Exhibition on Disaster Preparedness in the city of Padang, as reported by IRIN news, the humanitarian news service of the UN Office for the Coordination of Humanitarian Affairs (OCHA). The event was sponsored by the West Sumatra government and supported by the UN and international, national and local organizations, including the local NGO Tsunami Alert Community (KOGAMI) and the Indonesian Institute of Science (LIPI). People learnt about disasters through drills, games, discussions and disaster-storytelling. Schoolchildren also staged a mock disaster drill where they carried stretchers of “dead and wounded” after a mock fire, triaged and treated those who survived, and erected a medical tent to care for the affected.

People learnt about disasters through drills, games, discussions and disaster-storytelling.

This event was just one of many that were conducted across West Sumatra. KOGAMI, for example, trained local motivators to understand the processes of natural disasters like earthquakes and tsunamis as well as prepare and learn about basic medical and rescue procedures. In turn, they were to train others in the community. Other people from the NGO went to a fishing community seven kilometres north of Padang to discuss disaster preparedness. As a result, according to one resident, each family prepared a “run bag” with food, clothes and medicines in case of a disaster.

Although more than 100 000 buildings collapsed and 1120 people died, the years of preparation ensured that many lives were saved.

The awareness produced in the community by the large number of drills and disaster preparedness projects conducted made a difference. On 30 September 2009, disaster did strike West Sumatra. A massive earthquake measuring 7.6 on the Richter scale rocked the province and, in particular, the city of Padang. Although more than 100 000 buildings collapsed and 1120 people died, the years of preparation ensured that many lives were saved. The S. Yodarso Hospital, where preparedness plans were in place, was partially damaged but continued to function and provide vital life-saving services at that critical time. An ICU, obstetric and paediatric wards, and admission and emergency room services were correctly shifted outdoors with tents and existing equipment. Similarly, the health staff of the community health centre in Alai had been trained in what to do in an emergency. In spite of some damage to the structure of the facility, the health centre continued to serve the basic health needs of the people of Padang.

Community education on disasters ensured that the people were prepared to respond when the emergency occurred.

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Appropriate sanitation technologies for flood-prone areas

Among the major challenges with sanitation in Bangladesh is the lack of appropriate technologies for flood-prone and low-lying areas.

The typical pit latrines are vulnerable to floods. The latrines are inundated during floods and the excreta spills over. In some cases latrines are damaged and the excreta contaminates clean water sources and spreads of diarrhoeal and other infectious diseases. In a post-flood situation many latrine owners and their family members, not being able to repair the latrines, return to the old practice of open defecation, leading to the risk of infectious diseases.

In low-lying areas typical pit latrines do not work well because of the high water levels. Space constraints, quick filling and overflow of excreta are common problems for which appropriate solutions are needed.

In order to find a solution to this problem, the WHO Country Office for Bangladesh initiated a pilot study to identify appropriate technology for

low-lying and flood-prone areas. Oxfam, an international NGO, is conducting the pilot and recently completed the study. The pilot project was carried out in three areas with three different situations: Faridpur, Jessore and Kishoreganj.

The main purpose of the pilot project was to carry out a performance assessment of existing technologies in a flood situation and adapt and replicate them in targeted flood zones. The study used the UN Water and Sanitation cluster guideline for sanitation technologies in a flood situation as the primary basis. The most appropriate technologies, with necessary modifications, were identified to effectively suit the anticipated situation.

The study was supported by a technical committee including the Department of Public Health Engineering (DPHE), OXFAM, WHO and UNICEF, which provided strategic and advisory support. The poor and most vulnerable beneficiaries were selected through consultation. A total of seven types of latrines were field-tested. In each upazilla, 20 latrines were installed. The beneficiaries selected the site for the latrine and the appropriate technology. Village women were the

In low-lying areas typical pit latrines do not work well because of the high water levels after floods. Space constraints, quick filling and overflow of excreta are common problems for which appropriate solutions are needed.



main decision-makers for site and technology selection. All latrines were constructed with a raised plinth considering the normal flood level. Superstructures have been made as per availability of funds and materials. The technologies that were field-tested are:

Village women were the main decision-makers for site and technology selection.

- Ecosan: double chamber latrine
- Ecosan: single pit latrine
- Twin-pit offset latrine
- Raised single pit latrine
- Twin-pit offset latrine connected to 3-4 family chambers
- Drum latrine
- Clay pot or kolshi latrine

Among the field-tested technology options, five were accepted by the community on the basis of durability and sustainability. The drum and clay pot latrines were not found appropriate for flood-prone areas as these get filled up quickly and require regular emptying. Twin-pit offset latrines were well accepted by the beneficiaries. Single-pit latrines were moderately accepted but technically not found to be a long-term solution. Ecosan latrines were also acceptable.

OXFAM imported two diaphragm desludging pumps and manufactured four more locally to support hygienic desludging of pit latrines in dense/difficult areas. A field test was done and the result is encouraging. This type of study in different flood-prone areas will be continued in order to identify an appropriate and cost-effective latrine design and desludging method.

Low-cost appropriate technology for sanitation following floods and cyclones make a difference to the quality of life of the affected people.

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