

“THE RECENT FLOODS WERE VERY UNUSUAL”

Case Study: **Indonesia**

Disaster is never far from the people of Indonesia. An archipelago of 17,000 islands, Indonesia has over the past decade experienced increasingly frequent natural disasters, from severe floods and droughts to tsunamis, earthquakes and volcanic eruptions. Government statistics show it has averaged as much as 2.7 disasters a day over a 12-month period.

Global warming is already taking its toll and far worse is on the horizon. For Palang Merah Indonesia (PMI), the Indonesian Red Cross, the integration of climate change into its community-based disaster preparedness and risk reduction programmes is proceeding with urgency: to confront today's challenges and reduce tomorrow's vulnerabilities.

Indonesia is increasingly vulnerable to the impact of climate change. Global warming threatens to raise sea levels and flood coastal farming areas.

Increased temperatures, shortened rainy seasons, intensified rainfall and prolonged droughts and floods could bring serious food security and health threats and endanger the habitats and livelihoods of coastal communities.

These are some of the conclusions of a report from the consulting arm of leading Indonesian research institute Pelangi Indonesia, sponsored by the World Bank and Britain's Department for International Development. It followed a warning from Indonesia's Environment Minister Rachmat Witoelar that the country could lose as many as 2,000 small islands by 2030 due to a rise in sea levels.

Pelangi Indonesia, an independent body that advises the ministry, is blunt. Climate change phenomena will affect millions of Indonesians, if not by displacing them directly then by eliminating the industrial or agricultural zones or fisheries upon which their livelihoods and welfare depend. Flood control and sewerage systems will be overwhelmed, leading to more waterborne diseases, and disruption of commercial and transport networks.

To address global warming strong commitment and action plans are needed. The challenge facing the International Federation, the Indonesian Red Cross (PMI) and other stakeholders is the integration of adaptation measures with existing efforts in disaster risk reduction and health and care programmes. At-risk communities should be prioritized for preparedness and prevention. Adapting to climate change and doing something about it at community level can both address current concerns and reduce vulnerabilities to future risk.

Costs of disaster

Indonesia has a dry season with an east monsoon (June–September) and a rainy season with a west monsoon (December–March). Temperatures remain high throughout the year and there is very little difference from month to month.

It is one of the world's most disaster-prone countries, regularly beset by droughts, epidemics, floods, earthquakes, landslides, volcanic eruptions, tsunami waves and wildfires. According to the Centre for Research on the Epidemiology of Disasters (CRED), there have been over 100 major floods in the last century, 85 earthquakes and 46 volcanic eruptions.

These disasters, particularly floods, have serious economic consequences. Floods that covered a wide area of West Java and Banten in February 2007 left almost half a million people homeless or displaced. Commerce and telecommunications systems were disrupted for several weeks, causing economic damage totalling as much as \$US 1 billion.

CRED's 2006 Annual Disaster Statistic Review put Indonesia top of the regional list of disaster-affected countries. The data also show that there was a major increase in the frequency of floods which accounted for 59 per cent of all disasters that year.

"In recent years, rainfall patterns in Indonesia have been changing and unpredictable. Sometimes it rains in the dry season and other times it is very hot in the

rainy season," said Arifin Muh Hadi, PMI's Head of Disaster Management. "The February flood can probably be seen as a climate change impact because these previously unusual occurrences are becoming more commonplace."

Flood risks tripling

Jakarta, the Indonesian capital, and its 12 million inhabitants experienced severe floods following torrential rains in February 2007. Rivers and streams burst their banks and some areas were inundated with heavily polluted water to a depth of four metres. Thousands of houses, buildings and roads were submerged. Telephone lines and electricity networks were cut off in some parts of the city. Floodwaters blocked major roads and paralysed transportation. People were trapped on roofs while evacuations and distribution of relief items were hampered by the limited number of available rubber boats. This event caused multiple health problems, including an outbreak of dengue fever.

Although Jakarta is hit by floods in five-yearly cycles, these were the worst in 30 years, according to eyewitnesses, and analyses by climate scientists from the Royal Netherlands Meteorological Institute suggest worse to come. The risk of flooding on February's scale may already be 20 per cent higher than 30 years ago due to global warming, they say, and may well continue to rise, tripling over the course of this century.

"I don't remember we ever had floods like this before" The water rose so quickly to four metres, reaching our second floor. We had to move out," said Red Cross volunteer Deasy Sujatiningrani, 25, a resident in the Tangerang district of West Jakarta. "With the previous floods in 2002, city dwellers could still commute. But the recent floods were very unusual". Rawa Buaya community in Cenkareng, West Jakarta, was another hard-hit area. This slum area, home for some 2,000 impoverished residents, was inundated by water from the nearby Cikamangi River that poured into the congested streets.

Most of Rawa Buaya’s residents come from the provinces. Ponira, a 40-year-old housewife, has been here for years with her 16-year-old son, Ahmad, and her husband, Mustakin, who works at a construction site in Jakarta.

The floodwater reached halfway up the front door of her house. “We didn’t move out. We just stayed on the second floor,” said Ponirah. When asked what the cause of the flooding was in this area, Ponirah was reluctant to answer. She then laughed shyly, saying: “It’s probably because of our children. They always throw garbage into the river.”

According to PMI’s Arifin Muh Hadi many city dwellers remain confused. But since the Red Cross started its integrated community-based risk reduction/ climate change programme the public has become more aware of such issues as garbage collection, cleaning drains and other disaster preparedness and health-related concerns.

PMI and climate change

PMI, the Netherlands Red Cross through the Red Cross/Red Crescent Climate Centre, and the International Federation began work on a joint integrated programme in 2005, supported later by the German Red Cross. PMI then became part of an Indonesian climate change network comprising the Ministry of Environment and its Climate Change Focal Point, the national meteorological office, Pelangi Indonesia, the United States Agency for International Development, Bogor Agricultural University and other agencies.

The programme is based at PMI’s East and West Jakarta branches, focusing on Kampung Malayu sub-district in the east city and Rawa Buaya in the west. The selection of these branches hinged on the risk of extreme weather events and projected climate change impacts; poverty issues; capacity and commitment of PMI branches; support from local government and the will and capacities of communities to implement the programme.

Achmad Djaelani, of the PMI’s Disaster Management Information System noted, “The programme was established in Jakarta as a result of climate change phenomena like last February’s floods.”

The PMI national board has made climate change one of its continuing priorities. It was the theme for World Red Cross Red Crescent Day in 2007 and for discussions at the organisation’s annual general meeting.

“So far we have trained volunteers from selected PMI chapters and branches,” said Bevita Dwi Meidityawati, PMI Community-Based Disaster Preparedness Coordinator. “It’s just starting, but we believe our volunteers will be able to help promote public awareness through our continuing efforts in community-based activities.”

The Federation’s Indonesia delegation cooperates with Pelangi Indonesia, and the research institute has assisted PMI to be a resource agency on climate change and energy issues at various training sessions.

“People really need to be convinced that climate changes are already happening and affecting the way we live, be it rising sea level, flooding or droughts,” said Nugroho Nurdikiawan of Pelangi Indonesia’s information and communication department. “We need evidence but the problem in Indonesia is that there is not enough data or research on such issues.” More research was required to support advocacy, he said.

Integrating climate change

Wajo district is one of the most disaster-prone areas in South Sulawesi. It contains Tempe Lake, the biggest lake in the region. Nine rivers feed into it, but there is only one exit, which is often blocked by fishing nets. The local population uses the river for drinking water, as a toilet, and as a dump.

The district has a population of 360.000 people. The majority of residents in Wajo are fishermen and their

families, living in areas vulnerable to natural disasters. Wajo frequently experiences floods, fires, typhoons, landslides, and shipwrecks. The most recent disaster was heavy floods in July which affected over 8,000. This year the 400-household village of Laelo was flooded for over four weeks.

“Floods are a common problem here,” said Abu Bakar Fattah, 61. “The local government has a policy to relocate us to other areas which are safer, but we don’t want to move. This land belongs to our ancestors and we don’t know how to earn our living if we are not fishing.”

Muhamad Idris, 42, does not want to leave either. During the floods he could still go fishing, although he earned less. “Since fishing doesn’t always give enough income for us to survive, we must look for sideline jobs. I sometimes work at a construction site in town.”

PMI has been working with the Danish Red Cross to implement a community-based disaster preparedness (CBDP) programme, aiming to improve disaster preparedness to reduce risks from natural hazard, and to build capacity of the local communities to deal with disasters. Typical issues addressed are the provision of clean drinking water; the prevention of flooding, landslides, erosion, coastal abrasion; and the construction of earthquake-resistant houses.

For Lars Moller, Danish Red Cross coordinator for CBDP programmes in Sulawesi, the integration of climate change issues in the programme’s next stage is a natural progression.

“When Danish Red Cross planned and implemented its community-based disaster preparedness programme in South Sulawesi five years ago, the climate change issue wasn’t really integrated. But as climate change has started to have an influence we will adjust in the next stage to better serve the community and the local people.”

Lake Tempe is often covered by water hyacinth plants that spread rapidly, creating many problems for Laelo villagers. The plants have obstructed

the flow of rivers into the lake and also cause the riverbeds to silt up. During floods they are swept into huge masses and can damage houses when carried along by the torrent.

“Most Laelo villagers have little knowledge that the flooding results from chronic environmental problems in the area,” said PMI’s Irawan Kharie. “And they don’t understand what ‘climate change’ is really about.”

Previously, there was a lack of awareness about environmental protection, especially related to the growth of settlements along the rivers and a reduced water catchment area. The local government still focused its disaster management on relief, response and development activities. It paid little attention to getting the community to respond to disasters, resulting in a lack of skilled and competent disaster response personnel.

After the CBDP programme came to Wajo, the risk of damage by water hyacinths was reduced by building a barrier of concrete poles to prevent the plants from hitting houses. A group of selected local villagers were also trained as members of PMI’s community-based action team. New infrastructure, equipment and facilities and health-care improvements were introduced: towers for clean drinking water in the villages, the provision of information and 24-hour health centres.

“Though the CBDP programme here was not directly involved with climate change in the beginning, there are components of climate change issues that PMI integrated into its preparedness, prevention and response action plans,” said Arifin Muh Hadi.

“There is no single climate change standard, but it should be mainstreamed or integrated into each specific programme,” he continued. “For example, a disaster management or health programme should have climate change elements as part of its plan.

“In South Sulawesi, the CBDP programme is technically not a climate change programme. But it has elements linked to climate issues such as floods and

rainfall patterns. We can see from what the villagers told us about changes in rainfall patterns and difficulties in rain forecasts.”

Advocacy and awareness

In response to climate change impacts, the Indonesian Red Cross Communication Unit has initiated practical and strategic measures to implement community-based programmes for “Climate Change Adaptation”, known locally as *Adaptasi Perubahan Iklim* (API).

PMI has integrated climate change components into its community-based programmes in four stages. The first stage focuses on advocacy, awareness and orientation with both internal advocacy (within PMI at all provincial, municipal, district and sub-district levels) and external advocacy to the government, community and stakeholders such as NGOs, the International Federation and National Societies. An orientation and awareness of API is also provided to PMI management, staff and volunteers.

This advocacy method includes development of networks with agencies involved in API efforts, such as the Environment Ministry, Indonesian Forum for the Environment, Meteorology and Geophysics Agency, Indonesian Institute of Sciences, Centre for International Forestry Research, and Pelangi Indonesia.

“The term ‘climate change’ sounds very abstract to most people. Most of them still don’t understand what it is about. But PMI feels this is the time to start doing something to educate and inform the public through our community based programmes,” said Maria Rosa Aswi Reksaningtyas, head of PMI’s Communication Division.

“We are now working on the first stage after having officially launched the public awareness campaign on climate change issues on World Red Cross Red Crescent Day last May in Jakarta,” said Aswi. “This stage may take some time, but we will continue

to work closely with our Red Cross chapter and branches.”

For the second stage, PMI aims to develop tools for climate change adaptation through community-based programmes already launched in Indonesia. This can be done with new activities and areas selected for the development of climate change measures as part of risk reduction campaigns. In the third stage, there will be an integration of climate change into disaster risk management and community-based programmes and the training of Red Cross youth, disaster response, community-based action teams and village health volunteers.

During the last stage, PMI plans to promote adaptation by introducing climate change content to education curricula and training materials.

Rawa Buaya community provides one example of PMI communicating climate change issues to the public through ongoing programmes. “It’s not just about risk reduction but also the participation of PMI Headquarters and NGOs working on climate change,” said Achmad Djaelani.

Red Cross/Red Crescent roles

The roles of the International Federation and its National Societies are significant, particularly when global communities face a series of intensifying climate change effects with a dramatic increase in both the number of people affected and socio-economic losses.

CRED’s 2006 review of disaster numbers and trends reported that Asia remained the most affected region in terms of people killed. Moreover, US\$ 3.2 billion in economic damage was recorded in Southeast Asia that year, far more than the US\$ 1.05 billion average from 2000–2004.

Hence, the International Federation must strive to reduce potential risks while strengthening capacity building in disaster preparedness and response in

areas prone to natural disasters, said Jeong Park, Disaster Management Coordinator in Indonesia.

“As the Red Cross and Red Crescent, we have to translate scientific phenomena into things people can understand,” he continued. “That’s sensitization. We attempt to show that simple things in daily life are very much relevant to climate change adaptation.” Take throwing away plastic bags, he said. They could block drains and worsen floods caused by heavier rainfall.

The way forward

The integrated community-based risk reduction/ climate change project in Jakarta is now in its first phase. Due to end in 2008, it is mainly focused on conventional disaster preparedness for climate change. Other projects include dissemination and risk reduction activities and leadership orientation for community education.

“The awareness of the importance of integrated community-based risk reduction should eventually be seen in an improvement in preparedness and community involvement in advocacy campaigns,” said Jeong.

“Jakarta’s urban poor are the target groups for these climate change programmes. If they’re successful, improvement in the community and urban environment will lead to poverty reduction.”

When disaster strikes, the already underprivileged suffer most. In Indonesia as elsewhere, the grass-roots presence of the Red Cross and Red Crescent makes reducing the risks a natural priority.