SECTION 5
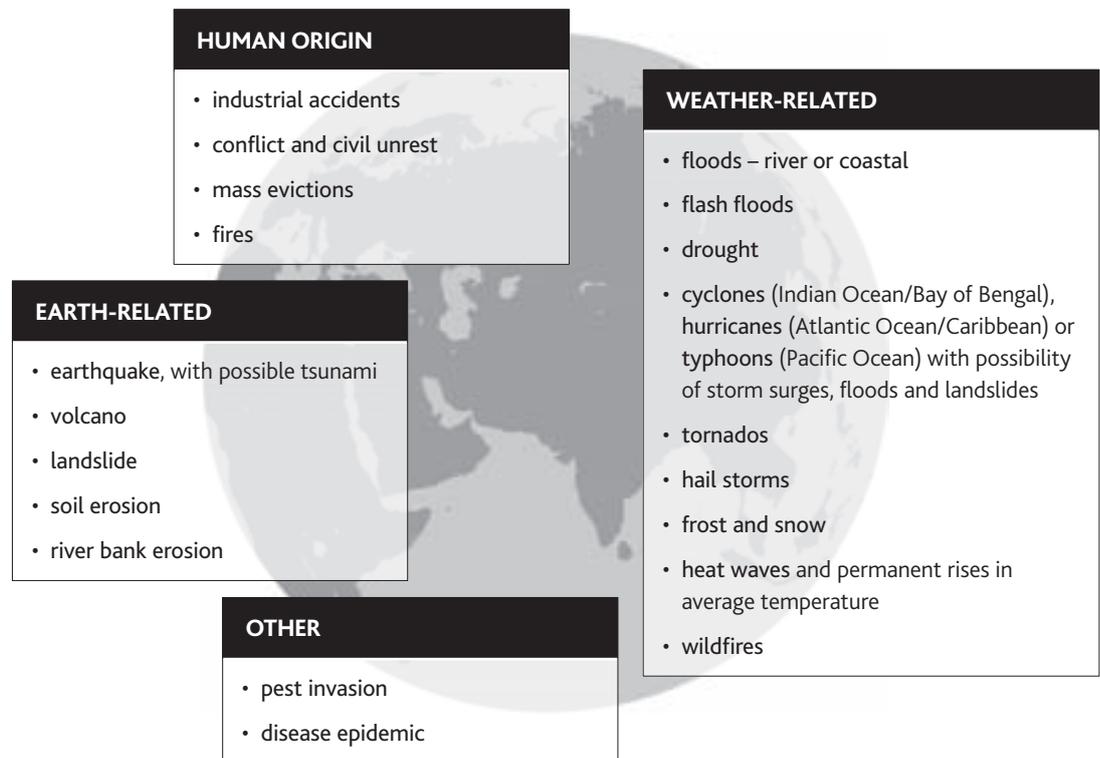
Step 2: Hazard assessment

The second step of PADR is to investigate the hazards that people face in their local areas. A hazard is an extreme event or occurrence which has the potential to cause injury to life and damage to property and the environment. We need to look at hazards in detail to ensure that we fully understand the main hazard and others which could affect the community – both now and in the future. The climate is changing significantly in many countries, so the pattern of weather-related hazards is changing as well.

5.1 Types of hazard

Common hazards that occur around the world are:

HUMAN ORIGIN

- industrial accidents
- conflict and civil unrest
- mass evictions
- fires

WEATHER-RELATED

- floods – river or coastal
- flash floods
- drought
- cyclones (Indian Ocean/Bay of Bengal), hurricanes (Atlantic Ocean/Caribbean) or typhoons (Pacific Ocean) with possibility of storm surges, floods and landslides
- tornados
- hail storms
- frost and snow
- heat waves and permanent rises in average temperature
- wildfires

EARTH-RELATED

- earthquake, with possible tsunami
- volcano
- landslide
- soil erosion
- river bank erosion

OTHER

- pest invasion
- disease epidemic

It is not usually possible to consider the hazard purely as a natural event: a good analysis must take into account the significant human actions as well. Hazards described as 'natural' occurrences are often linked to human activity and are made more severe by the impact of that activity. For example, environmental damage such as deforestation can lead to increased likelihood of landslides and floods.

Hazards can be divided into rapid-onset and slow-onset events. Examples of rapid-onset hazards are earthquakes or a flood where a river bursts its banks with little warning. Slow-onset hazards develop over a period of time and therefore it is easier to prepare for them. Examples include drought, which develops as a result of the rains failing over a period of weeks or months, and slow increases in sea level or in soil salinity.

5.2   Assessing hazards

Focus groups are commonly used to facilitate community discussion about local hazards. There may, of course, be more than one hazard, but it is best to limit the discussion to a maximum of three – the ones which the community selects as causing the greatest damage or loss.

The questions below should be used to determine the nature and behaviour of each of the three main hazards. Answers should be written in the three columns. When discussing 'severity', the community may see it in terms of impact (eg 80 per cent of the cows died). However, encourage people to give information about the hazard itself, such as depth of flood water or number of weeks without rain.

A timeline of the last 20–30 years is a good tool to use to examine the hazard history, but avoid spending too much time discussing the precise details. The time taken for this step should not be more than 30–45 minutes. The group may wish to answer Question 2 at the end, after collecting the other answers.

Hazard
assessment
table[8]

Question	Hazard 1	Hazard 2	Hazard 3
1 **TYPE** What hazards/disasters commonly affect your community?			
2 **SIGNIFICANCE** Which would you consider to be the most serious hazard, in terms of impact upon the community? (Do a ranking exercise.)			
3 **HISTORY** What was the last significant disaster event to affect this community, and when was it?			
4 **FREQUENCY** How often does this hazard occur (eg every year, one year in three etc)?			
5 **SEVERITY** How do you measure the severity of the hazard (eg depth of water, wind speed, lack of rain, damage)? What would you observe in a good year and a bad year?			
6 **DURATION** How long does the hazard persist (hours, days, weeks)?			
7 **LOCATION / AREA** Which parts of the community are worst affected? (Could show on map.)			
8 **SIGNS** Any early warnings, traditional or from government? How quickly (or slowly) does the hazard appear?			
9 **TRENDS** What changes are happening to the frequency, duration or severity of the hazard? Any new hazards?			

8   Not to scale – more space in each of the columns will be needed.

Communities can only describe hazards which have occurred in the past. However, under trends (Question 9), it is important to note any newly appearing hazards, as these may be a

consequence of climate change. It is possible that these new appearances will become the most significant problem in the years ahead. Team members may be able to draw on scientific sources, for example, government statistics, university research and scientific data/reports from the internet (see next page). Action plans must take account of this.

Example from Ethiopia

Hazard types	Drought, occasional pest attack.
Most significant	Drought.
History	Most serious drought was mid-1980s, lesser droughts since then.
Frequency	Every five years (approximately).
Severity	Comparisons are made with impact of the 1980s drought. Impacts include death and displacement of people, loss of livestock and crops. Livelihoods are badly affected.
Duration	One to three years.
Location	Whole of local area affected.
Warning signs and speed of onset	Indications over a period of months that rain will be less (eg from tree flowering patterns, insect activity, wind).
Trends	Farmers say droughts are more frequent than before and rain more erratic and unpredictable.

Add information from secondary sources (Section 4.5) into your hazard assessment. This is the time to share your research with the community and find out whether it reflects people's experience. Information can sometimes also be gathered from other organisations or individuals who have been working in the area for some time. They might be able to share valuable insights from their experience of working on disaster-related projects. The team can then bring together the scientific data from their research (if available), observations from the community and information from others to give an accurate overall picture. Triangulation – checking information from one source against other sources – is an important principle.

There are also low-cost ways of gathering weather data in the community in order to build up hazard-related information for the community's own records. Examples of this would include temperature and rainfall recording by a local school.

Some recognised scientific methods of measuring hazards are given below.

HAZARD TYPE	QUANTIFIED BY
Flood	water depth (max); water flow; days of water presence; rainfall
Drought	days/weeks with no rain; rainfall data
Cyclone	wind speed (max); rainfall data; speed/direction of movement
Earthquake	Richter scale

5.3 Climate change

Climate change is having an increasingly significant impact on weather-related hazards, particularly floods, cyclones and droughts. Slow changes in weather patterns may accelerate and cause bigger problems on a day-to-day basis than the more extreme flood, cyclone or drought events.

In some cases, local people will be well aware of changing weather patterns, rising sea levels etc. In other cases, hazards previously unknown to the community may start to appear regularly. Hazard assessment methodology (above) is based largely on hazards known in the past and may not pick up these future hazards.

For the hazard assessment process, it is therefore necessary for the team leader to check other sources of scientific data, as well as the information the team is able to gather locally. Such information should be included under the 'Trends' section of the hazard assessment template. The significance of climate change should be explained to the community at the same time as other feedback is given about the vulnerability and capacity assessment (see Section 8.1, Stage 1 – Verifying data). In this way, future activities can be designed to cope with these changed conditions or emerging hazards.

There are a number of ways of finding more specific information about climate change in different countries. Country Profiles have been compiled for many countries, describing the expected changes to climate and climate-related disaster risks.

SOURCE	DESCRIPTION	WEBSITE
Tearfund Country Climate Profiles	Profiles compiled for countries where Tearfund partners are working.	tilz.tearfund.org/Topics/Environmental +Sustainability
Adaptation Learning Mechanism	Country Profiles, projected changes in temperature, rainfall and climate-related disaster risks and impacts.	www.adaptationlearning.net
UNDP Climate Change Country Profiles	Fifty-two Country Profiles.	country-profiles.geog.ox.ac.uk Click on reports next to the relevant country.
World Bank Climate Change Data Portal	Gives scientific projections of climate change; also detail of likely impact on particular project types and adaptations.	sdwebx.worldbank.org/climateportal
Climate 1-Stop	This tool was launched at Copenhagen in December 2009. It is intended in time to provide a single location for all country profiles, case studies and climate change adaptation tools.	www.climateonestop.net
National government sources of information are listed on page 17 of *CEDRA*.		