



GUIDELINES FOR THE COLLECTION AND ANALYSIS of Socio-demographic Data in Humanitarian Crisis Situations in Latin America and the Caribbean

THESE GUIDELINES ARE PART OF A SET OF
THREE VOLUMES, INCLUDING A COMPLEMENTARY
HANDBOOK AND OPERATIONAL TOOLS



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and the Caribbean**

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Presentation

In humanitarian crises, low-income individuals and families living in precarious conditions usually suffer the worst damage, and find it very difficult to overcome these adverse circumstances on their own. Therefore, their protection is a matter of priority for national and local governments, international cooperation agencies, and other humanitarian organizations. The human **rights-based approach**¹ is an essential framework for inter-agency humanitarian response actions, as it emphasizes the basic needs of individuals, particularly those in situations of increased **vulnerability**.*.

As a whole, the humanitarian response has continued to improve with the design of more cost-effective interventions, thus fulfilling the purpose of increasing the assistance to the most vulnerable population. Each agency of the United Nations system fulfils a relevant and specific role according to its official mandate. In particular, the United Nations Population Fund (UNFPA) assists countries in generating and using socio-demographic data for the design of policies and programmes to improve and protect human lives. In 2007, following this mandate and its role in humanitarian response, UNFPA created a working group for the collection and analysis of information in **emergency*** situations, convinced that data production is not just another component of the humanitarian response, but is crucial to its effectiveness. This work group recommended that UNFPA synthesize the available information and experience acquired in the use of different types of socio-demographic data by preparing a set of guidelines for data collection and analysis in the four phases of humanitarian crisis: **preparedness***, acute, chronic and post-crisis. The organization views this as a practical and applicable approach to the analysis of humanitarian crisis, while understanding that real life emergencies do not present themselves in static phases or stages but are a continuous process.

As a result of this work, UNFPA produced the document entitled Guidelines on data issues in humanitarian crisis situations, published in English in June 2010. These Guidelines systematize the main aspects of the proposed socio-demographic information system that must be implemented prior to the occurrence of a **disaster***; mitigate its impacts during the most acute moments of the crisis; and have the possibility to be updated on a continuous basis.

In this context, the Latin America and the Caribbean Regional Office (LACRO) has identified the need for an adapted version of the above mentioned tool that reflects the particular risks in the region, as well as the geographic, socio-economic, demographic, institutional and technical capacity for the collection of information, while incorporating the experience of countries in the region in data collection, analysis and management.

Thus, this document provides guidelines for data collection and analysis in Latin America and the Caribbean (LAC), both in the case of crises derived from disasters generated by the occurrence of **natural hazards***, as well as from situations of violence and lack of individual security behind the displacement of individuals. The idea is to make a document available to all LAC countries to be adapted and adjusted to each national context.

¹ The terms highlighted in bold and accompanied by an asterisk (*) refer to definitions contained in the Glossary of Terms.

Given that each LAC country has pre-existing Humanitarian Network Protocols, UNFPA-LACRO seeks, through these Guidelines, to encourage their use to reinforce the understanding of the key role of socio-demographic data collection and analysis to be used in humanitarian crisis situations.

The general objectives of these Guidelines are to:

- Raise awareness of the National Statistics Institutes (NSIs)² and sectoral agencies³ in each LAC country, non-governmental organizations (NGOs), agencies of the United Nations system, and other humanitarian actors involved in humanitarian response, on the importance of having quality information about the general effects upon, and specific needs of, the more vulnerable populations in humanitarian crises, for the purpose of ensuring the efficiency of the aid intervention.
- Contribute to the development of capacities of the NSIs and national sectoral agencies, NGOs and humanitarian actors in LAC to collect, analyse, and manage population data to be used in crisis situations.
- Promote a human rights-based approach to population data collection and analysis for humanitarian crises.
- Suggest a possible work and coordination plan among humanitarian actors for the collection, analysis, and use of population data in humanitarian crisis situations.
- Propose tools and techniques for the collection of relevant data on the affected population, and identify major conventional and non-conventional sources.
- Demonstrate the importance of monitoring and evaluation (M&E) for managing the information to be used in emergencies.

² In Latin America and the Caribbean, National Statistical Institutes (NSIs) are also called National Statistical Offices, Directorates General of Statistics, among others. This publication will use the first as the standard designation.

³ Refers to agencies of the national public administration such as the Ministries of Health, Education, Public Works, Housing, Transport and Communication, among others.

To whom are these Guidelines addressed?

- To those responsible for the collection, administration and dissemination of information:
 - Technical and professional staff of NSIs and local/municipal statistical units in sectoral offices.
- To those responsible (on a temporary or permanent basis) for the administration and dissemination of information on the individuals affected by humanitarian crises:
 - Technical and professional staff of civil protection or emergency offices, NGOs, UNFPA offices, and humanitarian actors working in the field of humanitarian assistance and **risk management***.
- To decision makers at regional, sub-regional, national and local levels.
 - High-level authorities of national/central, territorial/provincial and local/municipal governments.

How are these Guidelines organized?

The Guidelines are organized into three volumes:

- ***Guidelines for the collection and analysis of socio-demographic data to be used in humanitarian crisis situations in Latin America and the Caribbean*** (hereinafter “**Guidelines**”).
 - Addresses the main theoretical and practical aspects of population data collection and analysis to be applied in humanitarian crises.
- ***Operational tools of the Guidelines*** (hereinafter “**Operational Tools**”).
 - Includes a proposal for tools to manage and implement in the collection of socio-demographic data to assist populations affected by humanitarian crises.

- **Handbook for the implementation of the Guidelines** (hereinafter “**Handbook**”).

- Provides ideas for the development of workshops and courses that may contribute to the training of relevant technical staff in public agencies, private organizations and NGOs that are called to action in humanitarian crises in the region.

- **Learning resources**

The Guidelines include the following learning resources:

- **Reference mark:** Directs the reader to the “Handbook” or to the appropriate section of the “Operational Tools”.
- **Further reading:** Suggests relevant references for the reader seeking further information on a specific subject.







Introduction

Most Latin American and Caribbean countries have experienced humanitarian crisis situations, associated in most cases with the occurrence of disasters caused by natural hazards such as earthquakes, tsunamis, mudslides, landslides, floods and hurricanes. Humanitarian response efforts, as a whole, are gradually advancing to respond more efficiently to emergencies. Governments are primarily responsible for ensuring an effective response, while the United Nations system, NGOs, and other humanitarian actors provide assistance to the affected countries in the region, in particular when the crisis exceeds the national capacities.

In disasters, families with limited resources experience relatively greater damage, represented by the partial or total loss of property and livelihoods. This is added to the potential loss of one or more family members and a forced change of residence due to the destruction and/or difficulty in gaining access to their homes. Emergency situations range in complexity depending on the number and characteristics of the affected individuals, the type of natural hazard associated with the crisis, the geographic features of the affected zone, the damage caused to critical infrastructures, and the environmental impact. In these circumstances, NSIs in the region and their local offices, various national and community/municipal public offices, as well as national and international humanitarian and civil society organizations, along with the United Nations system, including UNFPA, play an active, relevant, and definite role in providing comprehensive support to individuals, families and communities who have suffered damage or harm. To that end, it is important to assess the damage and needs during an emergency and generate data about the potentially affected population and its precise location before the disaster occurs.

In emergency situations, damages are usually distributed differentially among the population. Not all population sectors suffer the impact of a disaster equally. Variables such as gender, age, socio-economic conditions, ethnic origin, geographic location, are considered key determinants of differential effects. In particular, women of all ages and especially women of reproductive age and/or pregnant, children, adolescents and youth, people with disabilities and the elderly face situation of greater vulnerability and require specialized and timely support in general, and particularly in times of humanitarian crisis.

In addition, the human rights-based approach that inspires the design of these Guidelines assumes that the dignity of individuals persists under any circumstance, and that all the rights enshrined in international agreements are actively integrated in the inception, design, planning, implementation, monitoring, and evaluation of humanitarian aid⁴.

⁴ Some of the instruments that protect the rights of vulnerable populations are: the Convention on the Rights of the Child, adopted as an international human rights treaty on November 20, 1989 and the Inter-American Convention on the prevention, punishment and eradication of violence against women (April 1996).

For the sake of organization, these Guidelines are organized in the following chapters:

Chapter 1. International and regional background of Latin America and the Caribbean:

This chapter provides a conceptual framework and summarizes the learning and guiding principles adopted by the organization in four-phases phases, which is used as a reference to simplify and provide a practical use for the Guidelines, while recognizing that emergencies and responses are not necessarily static phases but represent a continuum. This chapter provides a broad overview of humanitarian actors and their **relevance*** in terms of organizational structure in each country of the region. As such, this chapter approaches disasters based on the type of **socio-natural hazard*** that have affected LAC in the last 40 years, in order to provide a regional framework on this matter.

Chapter 2. Collection and analysis of socio-demographic data in the preparedness phase:

This chapter presents the type of information to be collected and analysed in this phase, useful sources of socio-demographic data and technological innovations that may facilitate the task; who produces such information (national public agencies); what non-governmental entities and humanitarian actors would participate in this phase; and what specific activities should be performed during this

phase, such as risk modelling, Early Warning Systems (EWS) and the preparation of a Contingency Plan, to prepare for a humanitarian crisis situation.

Chapter 3. Collection and analysis of socio-demographic data in the acute phase:

This chapter systematizes the results of the activities performed in the preparedness phase. In the absence of a Contingency Plan, it shows how to approach a humanitarian crisis situation in its acute phase, starting with a multi-cluster initial rapid assessment (MIRA), with qualitative and quantitative methods that may facilitate the collection and analysis of the information needed to undertake this phase.

Chapter 4. Collection and analysis of socio-demographic data in the chronic phase:

This chapter focuses on the collection and analysis of required data, as well as the quantitative and qualitative methodologies and data sources to be applied and used during chronic crisis scenarios characterized by the displacement and/or relocation of the population.

Chapter 5. Collection and analysis of socio-demographic data in the post-crisis phase:

This chapter systematizes the significant relevance and contribution of data collection and analysis within the framework of the general **reconstruction***, rehabilitation, and **recovery*** efforts.

International and regional background of Latin America and the Caribbean

1.1. International Framework: The Operational Phases of Humanitarian Emergencies

For training and operational purposes, these Guidelines divide emergencies into four phases, while recognizing that, in practice, they do not necessarily evolve sequentially but represent an ongoing process of constant interdependence and continuity.

Figure 1 presents these operational phases in order to address a humanitarian emergency as an ongoing process:

- **The Preparedness Phase:** It refers to the time preceding a crisis, when a disaster has not yet occurred. In this phase, it is essential to identify the existence of man-made and natural hazards, their characteristics, distribution and spatial scope, but above all determine the vulnerability of the population exposed to their effects. It represents an unique opportunity to plan the potential response and conduct **prevention*** actions to reduce damages when the event occurs.
- **The Acute Phase:** It refers to the outbreak of the crisis situation. It is usually characterized by massive destruction of housing and vital in-

frastructure, the interruption of economic activities, the loss of human lives and the temporary or definite displacement of individuals, families and communities. This is the moment in which the population needs the most assistance.

- **The Chronic Phase:** Due to prolonged crisis, displaced populations are temporarily relocated to camps for refugees/displaced people or shelters. The people in this condition find themselves in a very complex situation and require the continuous support of humanitarian actors who must monitor the evolution of the condition of the entire population, in particular that of the most vulnerable, ensuring that their **human rights*** are respected at all times.
- **The Post-Crisis Phase:** The phase subsequent to an emergency (transition, recovery and reconstruction) is characterized by the total cessation of hostilities or the end of the disaster. Transition, recovery and reconstruction elements are rarely consecutive, but often overlap or occur simultaneously. In most countries, this phase is characterized by a continuous work to resume development programmes and the implementation of projects and programmes aimed at improving the quality of life of affected populations.



For more information on the operational phases proposed to assist the design of actions to respond to humanitarian crisis situations, see UNFPA. (2010). *Guidelines on data issues in humanitarian crisis situations*.

Available online:

http://www.unfpa.org/webdav/site/global/shared/documents/publications/2010/guidelines_dataissues.pdf.

Although the “didactic” phases suggest a sequential order (one phase begins as the previous one ends), crises do not behave as rigidly in practice. For example, in an emergency covering an extensive geographic area, different municipalities may be undergoing different phases, and also experiencing setbacks, if the situation becomes critical and uncontrollable. This is a very important aspect that must be addressed, especially when deciding what information must be collected and analysed, what methodologies are needed for their collection, and what are the main data sources that can contribute to confronting a humanitarian crisis. Similarly, the term or duration usually assigned to each phase is only a reference, as each crisis is unique.

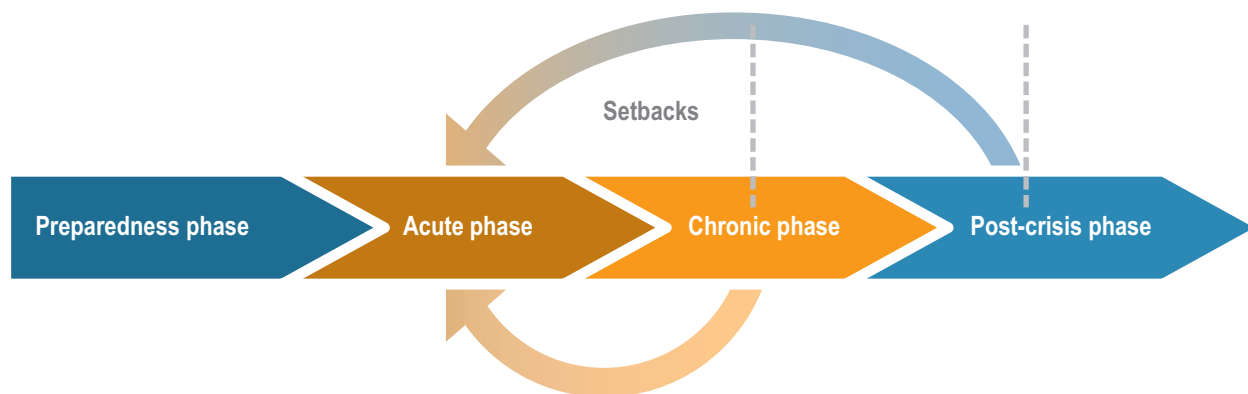
As shown in Figures 1 and 2, setbacks may arise during the recovery of communities, confirming the importance of monitoring through total restoration. The permanent collection of disag-

gregated data in each phase is a key task that contributes to enhancing stability in the affected communities to address the most pressing needs, ensure the security and protection of the people and establish a solid foundation for “a new beginning”.

In humanitarian crises, it is especially important to collect information on the various affected populations by disaggregating data by sex and age. Specific groups may be estimated from this disaggregation: boys and girls, adolescents and youth, the elderly, women of all ages, women of reproductive age, people living with HIV/AIDS, people of working age and potential collaborators in rehabilitation tasks, etc.

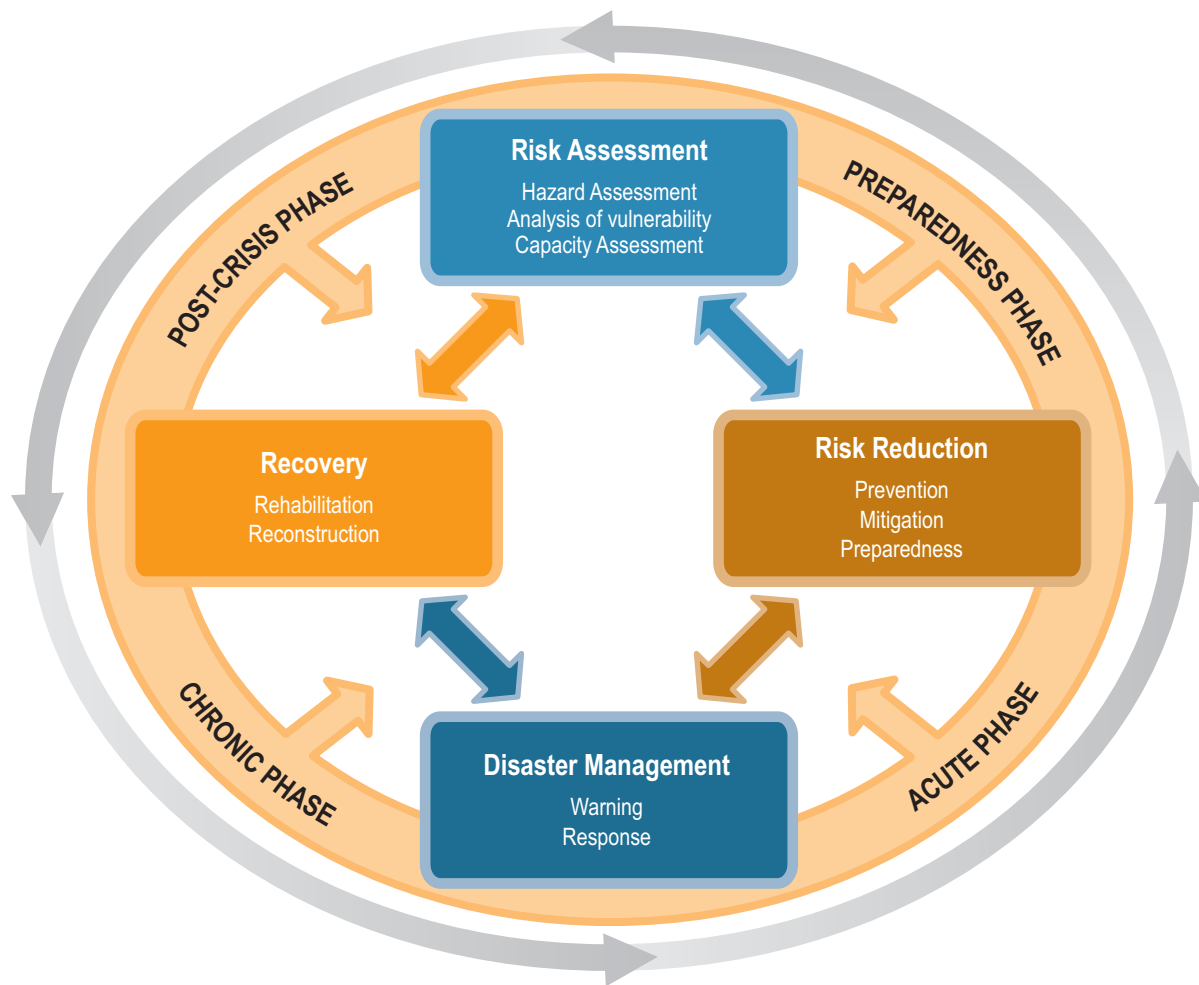
The needs identified during this initial socio-demographic characterization enable the activation of different types of responses based on aspects linked to sexual and reproductive

Figure 1. A Didactic Vision of the Operational Phases of a Humanitarian Emergency



Source: UNFPA (2010:9).

Figure 2. Disaster Risk Management in the Process of Sustainable Development



Source: UNFPA (2014).

health, gender, the care for adolescents, youth, children –principally related to the prevention of sexual violence, education, health, psychological support, recovery, among others.

In addition, given the greater likelihood of a chronic condition, the elderly require special care and attention. The same applies to people with disabilities, whose dependence is accentuated in crisis situations.

It is also important to characterize the population at risk or affected by a given **hazard*** in terms of household size and composition, ethnic

characteristics, religion, schooling, economic activity, or income, among others.

The analyses of the data on the affected population are fundamental inputs that contribute to improving the conditions of affected individuals, families and communities in order for them to overcome the crisis situation.

The lack of information, a delay in its delivery or its poor quality (outdated, inaccurate, or unconfirmed) could lead to a delayed humanitarian response and contribute to prolonging the crisis and/or aggravating it.

1.2. About humanitarian actors

The first major actor to respond to the crisis posed by the emergency is the affected community. In this case, it is the organized civil society, including community-based development associations, the campesino patrols (community groups organized to prevent crime and maintain law and order in indigenous communities) homeowner associations, organized volunteers, social networks, among others.

In addition to civil society, various government agencies (Ministries), NGOs and even academia and university circles are key actors in the coordination of actions to anticipate, cope with and overcome humanitarian crises.

Moreover, while the State is primarily responsible for the response during a disaster, several national and supranational organizations (NGOs, sub-regional intergovernmental organizations, UN, etc.) can provide support with different tasks at different stages of the emergency.

This additional contribution does not relieve the State from coordinating, regulating and monitoring disaster relief. It is the State that shall apply for assistance and establish the legal mechanisms for the effective implementation of the assistance in its territory.

According to REDLAC (2014), actors⁵ able to contribute to emergency response include:

• **United Nations system:**

- United Nations High Commissioner for Refugees (UNHCR).
- World Food Programme (WFP).
- United Nations Children's Fund (UNICEF).

⁵ It should be noted that the systematization of humanitarian actors included in this section is presented as an example and is based on the records available at the time of writing this. The context of Latin America and the Caribbean shows a real diversity of humanitarian actors, each embedded in countries with very different contexts, whose programmatic actions are also in constant and dynamic process of change and improvement. The list is therefore to provide an overview of the subject, but each country in the region should adapt it to local circumstances and sectors that are relevant and active in the country.

- Office for the Coordination of Humanitarian Affairs (OCHA).
- Pan American Health Organization (PAHO).
- International Strategy for Disaster Reduction (UNISDR).
- United Nations Food and Agriculture Organization (FAO).
- Joint United Nations Programme on HIV/AIDS (UNAIDS).
- United Nations Development Programme (UNDP).
- United Nations Population Fund (UNFPA).
- United Nations High Commissioner for Human Rights (OHCHR).

• **International Organizations (IOs) and Non-Governmental Organizations (NGOs):**

- International Federation of Red Cross and Red Crescent Societies (IFRC).
- International Organization for Migration (IOM).
- CARE International.
- Médicos sin Fronteras (MSF) España.
- OXFAM International.
- PLAN International.
- Telecoms Sans Frontiers (TSF).
- World Vision (WV).
- Norwegian Refugee Council (NRC).
- Médicos del Mundo (MDM).
- International Committee of the Red Cross (ICRC).
- World Society for the Protection of Animals (WSPA).

• **Donors:**

- Spanish Agency for International Cooperation for Development (AECID).
- European Commission-Humanitarian Aid & Civil Protection (ECHO).
- Office of U.S. Foreign Disaster Assistance (OFDA).



• **Sub-regional Organizations:**

- Coordination Centre for the Prevention of Natural Disasters (CEPRENAC).
- Caribbean Disaster Emergency Management Agency (CDEMA).
- Andean Committee for Disaster Prevention and Attention (CAPRADE).
- Specialized Meeting of MERCOSUR on Socio-natural Disasters Risk Relief, Civil Defence, Civil Protection and Humanitarian Assistance (REHU).

It is important to consider the importance of these humanitarian actors in terms of distribution (highlighting the possibility of including a mapping of humanitarian actors, including a matrix/directory with their mandates and locations), organizational structure and available resources, so that they may contribute to potential strategic alliances in the region.

Examples 1.1 and 1.2 presents the template of the matrix currently used in Honduras for the mapping of humanitarian actors in the country, which may assist in the various tasks demanded by humanitarian crisis situations.



The *Directory of resources and organizations* (2014) and the *Governments Guide* (2011) include relevant information related to the coordination, mobilization of equipment, financial resources, processes and other resources offered by the various humanitarian actors working in the LAC region to contribute to the design of actions to address humanitarian crises.

REDLAC. (2011). *Guía de gobiernos 2011*.

Available online:

http://www.redhum.org/archivos/pdf/ID_9201_BE_Redhum-Guia-Guia_para_Gobiernos-REDLAC-20110413.pdf.

REDLAC (2014). *Directorio de recursos y organizaciones*.

Available online:

http://dev.redhum.org/documento_detalle/redlac-directorio-de-recursos-y-organizaciones-

Example 1.1. Matrix template used in Honduras for mapping humanitarian actors⁶



**Resources of Organizations:
By organization, location and sector**

(Matrix for humanitarian responses or preparation phase)

| | |
|-----------------------|--|
| Source of this Matrix | |
| Contact person | |
| E-mail | |
| Telephone | |
| Last updated | |

| Country | Department | Municipality | Organization | Sector | Resource type (Food, non-food, human, financial) | Minimum requirements | | | Opcional | | | |
|---------|-------------------|--------------|--------------|--------|---|---|--|--|--|--|---|-------------------|
| | | | | | | Quantity (Enter only numbers) For estimates, use italics | Unit. (Type measurement unit for the amount) Example: kg, MT, US\$, people, tents, kits | Description. (Brief description) Example: Medical, cars, tents, seeds, etc. | Other comments. (Indicate any additional comments) Example: Location and availability | Population served by the resource (Families) For estimates, use italics | Vulnerable population For estimates, use italics | Contact |
| | Francisco Morazan | Tegucigalpa | UNFPA | | Human | | | | | Marcos Carias | 2220-1100 ext. 1502 | carias@unfpa.org |
| | | | | | | | | | | Flor Matute | 2220-1100 ext. 1536 | fmature@unfpa.org |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
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| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

⁶ UNFPA-LACRO thanks Marcos Carias (Honduras) for contributing this matrix prepared in 2013 for the validation of these Guidelines.

Example 1.2. Matrix template used in Honduras for mapping humanitarian actors *(continued)*

Resources of Organizations:

By organization, location and sector

(Matrix for humanitarian responses or preparation phase)

| | |
|-----------------------|-------------------|
| Source of this Matrix | Organization name |
| Contact person | Name |
| E-mail | |
| Telephone | (xxx) 999 999 999 |
| Last updated | mm/dd/yyyy |

| Country | 1st. Level Administration | 2nd. Level Administration | Organization | Sector | Resource type (Food, non-food, human, financial) | Quantity (Enter only numbers) <i>(For estimates, use italics)</i> | Description <i>(Brief description of the resource: doctor, medical, cars, tents, seeds, etc...)</i> | Open comments <i>(Indicate any comments about resources: location, availability)</i> | Population served by the resource <i>(For estimates, use italics)</i> | Vulnerable population <i>(For estimates, use italics)</i> |
|---------|---------------------------|---------------------------|--------------|---|---|--|--|---|--|--|
| | | Toledo | CARE | Select activity sector | Food | 200 | Corn | Immediate | 300 | |
| | | Corozal | IFRC | Temporary shelters and non-consumable goods | Non-food | 300 | Tents | 7 days | 1,500 | |
| | | Corozal | OXFAM | Health (including HIV-AIDS) | Human | 2 | Doctors | 5 days | 400 | |
| | | Toledo | OXFAM | Health (including HIV-AIDS) | Human | 8 | First aid kits | Immediate | | |
| | | Pastaza | UNICEF | Health (including HIV-AIDS) | Non-food | 500 | Medical personnel | Immediate | 500 | |
| | | Bolivar | WFP | Food, nutrition, food security | Food | 450 | Various seeds | 3 days after disaster | | |
| | | Corozal | WFP | Food, nutrition, food security | Human | 2 | Nutritionists | From Europe, directly to disaster site | | |
| | | Toledo | IFRC | Temporary shelters and on-consumable goods | Non-food | 1 | Shelters | Located in northern region | 1,500 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

1.3. Regional Context of Latin America and the Caribbean: Hazards, Vulnerability and Economic Impact of Disasters

Since humanitarian crises are associated mostly with events of a natural origin, it is necessary to have a deep understanding of their recurrence (their frequency), the manner in which they manifest themselves, their magnitude, the historically affected zones and the conditions of the population exposed to them.

The particular geography of LAC provides the approximately 600 million inhabitants of the region with a territory that is abundant in natural resources and potential for development⁷. However, as shown in Figure 3, which illustrates disaster events during the 1970-2010 period, several natural hazards that are part of the geographical context with which we must coexist.

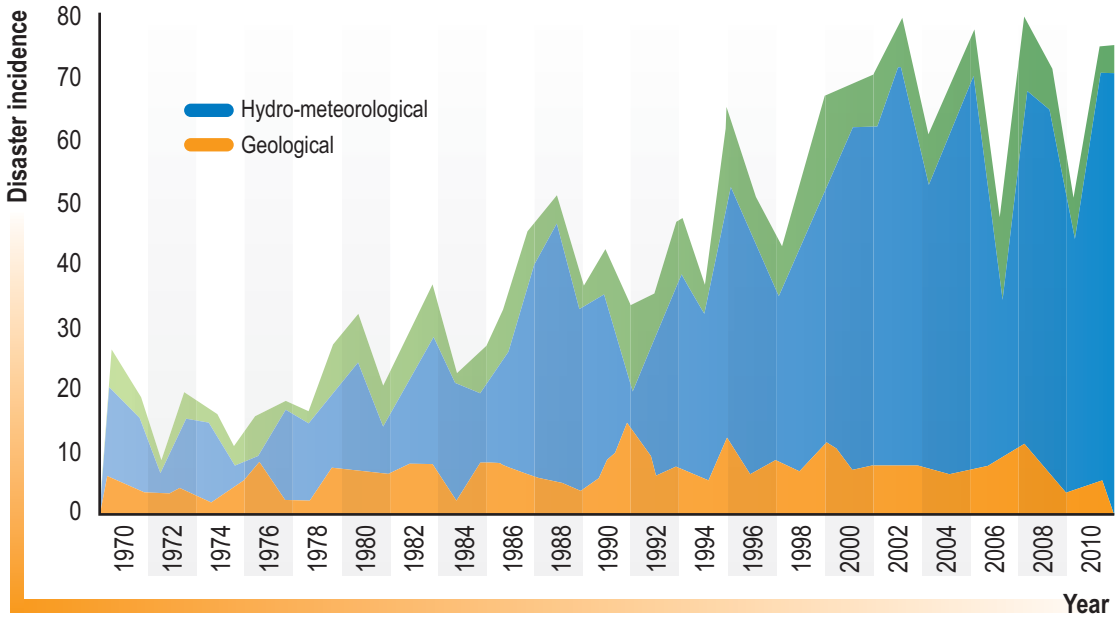
⁷ United Nations (2010:2. Table I.1).

Current scientific evidence warns that, as shown in Figure 3, disasters driven by natural hazards affecting the population of the region have increased in recent times.

The increasing occurrence of disasters reveals a growing influence of **hydro-meteorological hazards*** compared to the impact of **geological hazards***, which remain relatively constant over time. According to UNFPA-UNISDR-UN Habitat (2012:18), the LAC region has shown a rising trend in the number of disasters over the last forty years, ranking only behind Asia as the region with the highest annual average number of disasters.

Chart 1 synthesizes the main types of hazards associated with humanitarian emergencies. There are basically three types of socio-natural hazards: geological (or geophysical), hydro-meteorological, epidemiological (**biological***) and combinations of these. Added to these are those generated by human activities (such as, **technological hazards***).

Figure 3. Disaster incidence per type of hazard in Latin America and the Caribbean (1970-2010)



Data source: EM-DAT, OFDA/CRED. International database of disasters, University of Louvaine, Brussels, Belgium (www.emdat.be). Data accessed in EM-DAT on November 14 2011. Source: UNFPA-ISDR-UN-Habitat (2012:19. Figure 2).

Chart 1. Types of hazards associated with humanitarian emergencies

| Socio-natural Hazards | | | |
|--|-----------------------------------|---------------------------------|-----------------|
| Geological | Hydro-meteorological | Technological | Epidemiological |
| Earthquakes | Floods | Electrical | Malaria |
| Fault system | Tropical cyclones (wind, rain) | Chemical explosions | Cholera |
| Tsunamis | Heat waves | Toxic spills | Dengue fever |
| Volcanic eruptions | Hailstorms | Pollution (water, soil, air) | Malaria |
| Torrential flows Slides Landslides | Droughts | Chemical fire | Yellow fever |
| Falling rocks Subsidence | Frost | Radioactive leaks | Influenza |
| | Wild Fires | Radiological | Chikungunya |
| | | Structural Fire | Ebola |

Source: UNFPA (2011)..

The first two appear to be the most frequently associated with the humanitarian crises occurring in the LAC region. If aggregated, weather-related hazards affect a larger percentage of the population and are more frequent. On the other hand, geological hazards show a much lower recurrence (the interval between one earthquake and another is higher), although they are usually more lethal (with a higher death toll per high-magnitude event), and the economic damage is also greater due to the loss of infrastructure and roads, as well as the interruption of economic activity.

Understanding the dynamics and timing of hazards helps to estimate the time it takes an affected territory to return to normal functionality,

and consequently, to foresee the humanitarian assistance needs of the affected population.

1.3.1. Geological Hazards

Earthquakes are an important part of the earth's internal activity, and have a generalized presence in the region. The Nazca, Cocos, and Caribbean plates, consecutively located from South to North (from Chile to Mexico in the Pacific Basin), are the main source of geologic instability. Example 2 shows a sample of the impact of the Haiti and Chile earthquakes in 2010. For their part, the disasters and humanitarian crises associated with volcanic eruptions have been less frequent.

Example 2. Impact of the Haiti and Chile earthquakes in 2010

| Description | Haiti | Chile |
|-----------------------------------|---------------------------------|---------------------------|
| Area | Atlantic | Pacific |
| Plate collision | Caribbean-North America | Nazca-South America |
| Magnitude (R.S.) | 7.0 | 8.8 |
| Frequency (>7 R.S.) | Only this earthquake since 1770 | 13 earthquakes since 1973 |
| Mercalli Intensity scale | IX-XI (1) | XI-XII (2) |
| Location | 15 km from Port-au-Prince | 105 km NNE of Concepcion |
| Depth at epicentre | 10 km | 35 km |
| Population in the affected area | 1,500,000 | 200,000 |
| Tsunamis | No | Yes |
| Civil Protection Service | No | Yes |
| Earthquake-resistant construction | No | Yes |
| Death toll | >200,000 | 452 |
| Damaged houses | Several million | 500,000 |
| Slide induced/likely effects | Yes | Yes |
| Flood induced/likely effects | Yes | Yes |

Note (1): Up to 6,270,000 tons of energy equivalent to TNT weight.

Note (2): Up to 200,000,000 tons de energy equivalent to TNT weight.

Source: Geólogos del Mundo. *Boletín Extraordinario*, Número 3 (14/04/2010).

Mountainous environments also pose a special danger for people who occupy areas along riverbeds, settle on slopes or in flood zones (alluvial fans). Landslides, subsidence, falling rock, torrential flows, and mudslides (mass removal mechanisms), are frequent events in the region, with catastrophic consequences. The effects on the population are aggravated during the rainy season, when these events become more frequent. Example 3 shows a sample of the frequency of this type of events in selected LAC countries.

1.3.2. Hydro-meteorological Hazards (weather)

Weather is also a very important element in terms of the sudden or gradual action of atmospheric factors such as rains, hailstorms, freezes, heat waves, or droughts that cause infrastructure collapse, agricultural losses, as well as significant effects on people. Due to ongoing **climate change*** and the **El Niño (La Niña) phenomenon***, many areas in LAC have suffered considerable damage.

Abundant rainfall (torrential or not) or lack thereof over prolonged periods (droughts), along with the action of wind and extreme temperatures, directly or indirectly affect the population, and may cause humanitarian crises⁸.

Tropical cyclones* that affect countries in the inter-tropical zone and even beyond, (including parts of Mexico, Central America, the Caribbean and the northern South America) maintain the civil protection warning systems of these countries on alert every year from May-June to October-November, with Central American countries, in particular, experiencing particularly intense effects. Hurricane Mitch provided one example of the devastating effects of this type of event when it struck Honduras in 1998⁹.

1.3.3. Epidemiologic (biological) Hazards

A rise in epidemiologic risks is seen lately due to the confluence of two factors: an increase in the average temperature of the planet, and the vulnerability of the population. Regarding the lat-

ter, a deficient, unplanned urbanization is responsible for the lack of enough quality potable water, as well as for an inadequate and insufficient (solid and non-solid) waste disposal services, sewage systems, which in some cases is worsened by poor coverage and insufficient health services, including the lack of vector control and equally insufficient epidemiologic monitoring.

1.3.4. Technological Hazards

Urban and industrial development, little rigorous in environmental terms, is allegedly responsible for the creation of new hazards for people in medium and large sized cities in the region, which adds to the above-mentioned natural ones. In fact, the installation of industrial complexes in many cities has been accompanied by an accelerated and disorderly urban population growth that frequently violates safe settlement limits. This has become of the utmost importance, and is directly related to pre-existing conditions that convert a natural disaster a true emergency of the worst kind. On the other hand, radioactive risk (nuclear plants) is considered minimal in the region, because only few countries, namely, Argentina, Brazil, and Mexico, have nuclear programmes. Overall, risk from this activity is associated with the final disposal of (medical or industrial) waste.

⁸ While other phenomena such as turbidity currents, ocean waves, waterspouts and swell, involve danger they are rarely associated to disasters.

⁹ For further references on the impact caused by Hurricane Mitch in 1998, see: ECLAC. (1999). Honduras: evaluación de los daños ocasionados por el Huracán Mitch, 1998. Su implicaciones para el desarrollo económico y social y el medio ambiente. Santiago de Chile. Available online: <http://www.eclac.org/publicaciones/xml/1/15501/L367-1.pdf>.



Example 3. Effects of the disasters in selected countries of Latin America and the Caribbean

| COUNTRY | EFFECTS OF DISASTERS |
|--------------------------|---|
| <p>BOLIVIA</p> | <p>Period: 1970-2011 / Number of fact sheets: 3,962</p> <p>Last updated: September 6, 2012</p> <p>The major events reported in Bolivia's historic records are floods, landslides, epidemics, and droughts. The effects due to floods and landslides basically occur during the rainy season (November-March), while epidemics occur from January through March. Moreover, there are fires throughout the year, with a slight increase during the drier months (May through December). Droughts coincide with the beginning of the flood season (September through December).</p> <p>The annual distribution of reports does not allow to identify the trend, increment, or reduction in the occurrence of disasters, although it does underscore peaks in 1979 and 2004. Reports cover events occurring mainly in the central and southeast areas of the country, but in the case of landslides, they are concentrated in the northwest, in provinces of the La Paz, Cochabamba, and Santa Cruz Departments. The effects associated with landslides are recorded mainly at the La Paz Department.</p> <p>Epidemics account for 60% of the total deaths recorded in the database, while other events such as floods, landslides and torrential flows each account for less than 10%. Recorded earthquakes (47%), landslides (23%), and floods (19%), account for almost 90% of housing destroyed.</p> |
| <p>CHILE</p> | <p>Period: 1970-2011 / Number of fact sheets: 12,602</p> <p>Last updated: November 28, 2012</p> <p>The information recorded corresponds to the period 1970-2009. There is a reduction of records during the 2000 decade. Hydro-meteorological events represent more than 40% of the records. The events with the most records are storms, droughts, and floods. Fires and forest fires represent more than 30% of the disaster reports in the database. Fires account for the highest number of loss of life, with 42%. Earthquakes account for more than 50% of the recorded destruction of housing.</p> |
| <p>COSTA RICA</p> | <p>Period: 1968-2012 / Number of fact sheets: 13,813</p> <p>Last updated: September 9, 2012</p> <p>Information systematically recorded for the period 1970-2007. Disaster reports increase along the second half of the 90s, probably because of the use of an official information source during the period 1995-2007.</p> <p>More than 70% of disaster reports recorded are driven by hydro-meteorological events, particularly floods and landslides. These occur mainly from May to November. All provinces have one or several cantons that have been recurrently affected by some natural, socio-natural, or anthropogenic event.</p> <p>Floods and landslides account for more than 40% of deaths, followed by volcanic activity and fires. Earthquakes (60%) and fires (21%) on record account for more than 90% of the housing destroyed.</p> |

Example 3. Effects of the disasters in selected countries of Latin America and the Caribbean *(continued)*

| COUNTRY | EFFECTS OF DISASTERS |
|------------------|--|
| ECUADOR | <p>Period: 1970-2011 / Number of fact sheets: 8,130</p> <p>Last updated: October 10, 2010</p> <p>Information recorded for the period 1970-2011. An increase in records is seen by the end of the '90s.</p> <p>Hydro-meteorological events represent more than 50% of the records; floods and landslides are the events with the most records. These occur mostly from January to April.</p> <p>Accidents account for the most loss of life, with 53%. Recorded floods account for more than 30% of the destroyed housing.</p> |
| PERU | <p>Period: 1970-2011 / Number of fact sheets: 21,578</p> <p>Last updated: June 14, 2012</p> <p>Database reports cover three decades, with peaks in 1970, 1971, 1972, 1983, 1994 and 1998. For each decade, periods with a higher or lower number of disaster reports may indicate rainfall increases or decreases.</p> <p>Nineteen percent of the recorded reports are recorded in Lima, perhaps due to the fact that it is the capital of the country where one third of the population is concentrated, but also due the emphasis the data source placed on it. Other Departments with a relatively significant percentage of information are Arequipa, Ancash, Piura, Cuzco, and Junin. The departments located in the jungle areas of the country record the least number of reports.</p> <p>The database contains information for 32 of the 35 types of events identified in DesInventar, as well as the data associated with intoxication, epizootic disease, and cold waves. Flood events are the ones with the higher number of associated reports, followed by rains, landslides, mudslides, fire and pollution, which account for nearly 55% of the data.</p> |
| VENEZUELA | <p>Period: 1700-2012 / Number of fact sheets: 6,047</p> <p>Last updated: November 22, 2012</p> <p>The database shows a concentration of significant data, both in terms of time and space coverage. Over time, more data is available after 1998, associated with an increase in the recording of emergencies by some government offices.</p> <p>Spatially, the data focuses on the central-northern section of the country, due to the fact that most of the population is located in that area, as well as the emphasis given to it by the information sources.</p> <p>During the period of 1970 to 1998, most reported events include floods, landslides and structural fires, accounting for 73% of the reports for the period. Moreover, between 1999 and 2007, the first two events continue to be the most reported, although landslides occupy the first place.</p> |

Example 3. Effects of the disasters in selected countries of Latin America and the Caribbean (continued)

| COUNTRY | EFFECTS OF DISASTERS |
|---------|---|
| | <p>Most of the deaths reported in the Venezuelan records are associated with hydro-meteorological events such as floods, torrential flows, landslides, and rains, representing 67% of the total.</p> <p>These events are the ones with the most housing destruction, representing more than 90% of those reported in the entire database. This destroyed housing was recorded mainly in the year 1999, as well as during the period of 2004-2006, and is associated with the rains that affected the state of Vargas and the capital district. However, during the period of 1970-1998, the database recorded an average of 200 to 300 destroyed housing per year, as well as four peaks that surpass the housing destroyed per year.</p> |

Source: Information available online: <http://online.desinventar.org>. (Last visited: November 2012).

1.3.5. The population's Vulnerability to Natural Hazards

It is important to note that for a disaster to occur, there must be two concurrent factors: on the one hand, the evidence of a natural, technological, or epidemiological (biological) hazard, and on the other, an exposed population who is vulnerable to its effects. What we understand as **disaster risk***, whose conceptual framework is presented in Figure 4, is the likelihood that a hazard may manifest itself and affect a vulnerable population with catastrophic consequences.

Figure 4 emphasizes the drivers of the vulnerability of the population upon the occurrence of disasters. It allows us to understand that the habit—whether conscious or not—of considering natural hazards and disasters as synonymous is a gross conceptual error. When we say “earthquake”, we should not automatically assume that it means “disaster”, because for that natural event to become a disaster it must meet the condition of affecting a community or group of people vulnerable to its effects.

In LAC, underlying factors associated with the vulnerability of communities include: i) late and insufficient industrial development; ii) unplanned and accelerated urban growth in most

large and medium-sized cities; iii) high ratio of people in precarious and poverty conditions.

Recent studies on the almost simultaneous 2010 earthquakes in Chile and Haiti, illustrate major socio-economic, political, institutional, and geographical-territorial differences across countries in the region, in-depth (structural) factors that explain the great differences in terms of the levels of vulnerability and strengths reflected, such as the number of lives lost in one country and the other (Duran, 2010), as shown in Example 2.

Example 2 illustrates the determinant role of population vulnerability in the occurrence of disasters in the two countries mentioned above. In fact, technically, the destructive intensity of the earthquake in Chile of a magnitude of 8.8 on the Richter scale showed a level of destruction infinitely lower than the 7.0 magnitude earthquake in Haiti. In addition, the Chilean coast was struck by a tsunami, the main event responsible for the number of deaths, while Haiti was not.

Nonetheless, the Haiti earthquake, compared to the one in Chile, included two more destructive geological parameters. One of them was the proximity of its epicentre 15 kilometres from Port-au-Prince, the capital of the country, compared with 105 kilometres between the city of

Concepcion and the Chilean capital. The other was the depth of the epicentre, 10 kilometres in the case of Haiti, and 35 kilometres in the case of Chile. In brief, the proximity to densely populated zones and the shallow depth of the epicentre with respect to a point produced more damage.

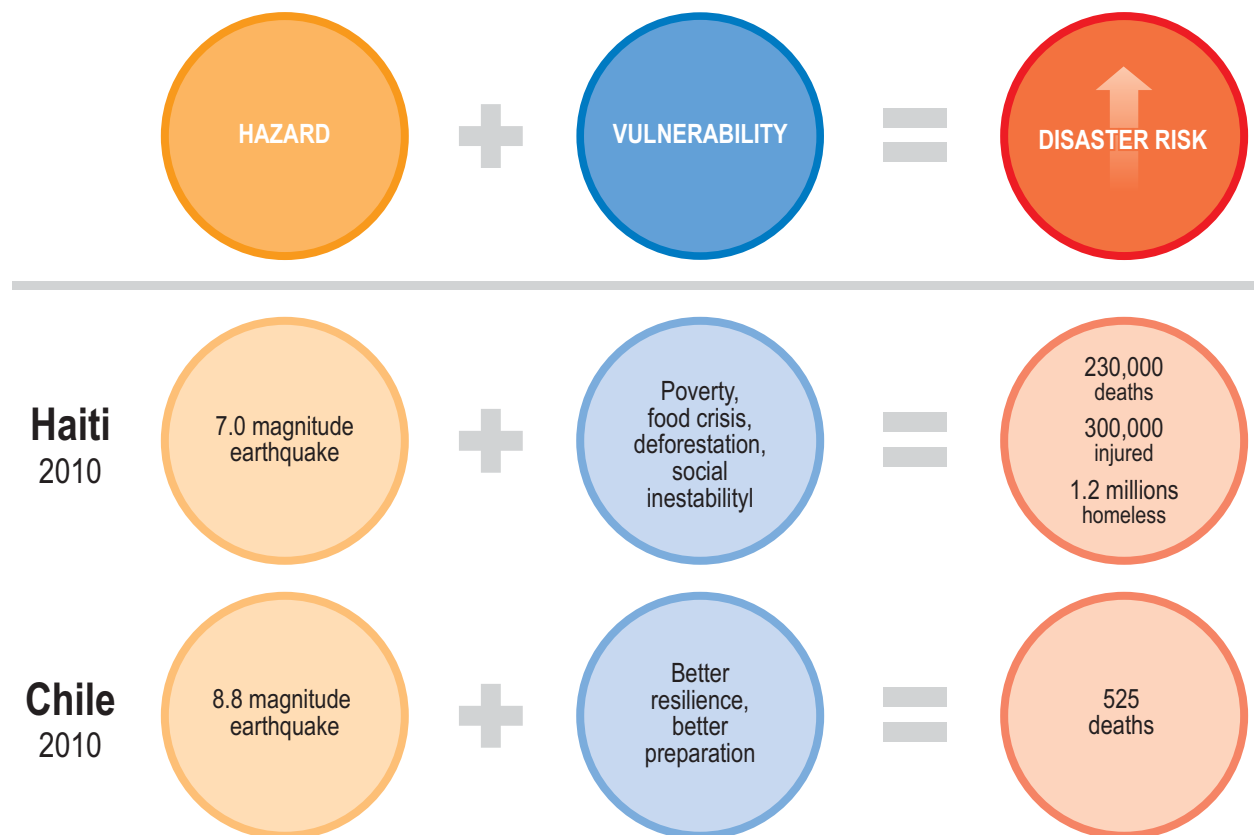
In any event, the greatest difference between the consequences of one earthquake and the other has been, in the case of Haiti, the grave loss of human life (more than 200,000) and damaged houses (several million), compared to the destructive effects in Chile (452 victims and 500,000 damaged houses). In the case of Chile, the country had buildings with adequate seismic-resistant materials and pre-existing seismic danger maps. On the other hand, Haiti, with its high levels of poverty among the population,

did not meet any of such conditions because it lacked the economic and preventive means to minimize the disaster (Angel Carbayo, President of the NGO World Geologists, April 14, 2010).

1.3.6. Economic Impact of Natural Disasters

As observed in Chart 2, according to ECLAC (2010) preliminary figures, 98 large catastrophes (weather and geophysical) occurred in LAC in 2010, with economic losses in the order of almost 50 thousand million dollars. In this regard, that year is recorded as having the greatest impact in terms of loss of human lives and materials and the highest economic cost, which is considered unusual with respect to the rest of the time periods.

Figure 4. Conceptual framework of a disaster risk



Source: Adapted from UNFPA (2010) with information from Geólogos del Mundo. *Boletín Extraordinario*, Número 3 (14/04/2010).

Chart 2. Disasters in Latin America and the Caribbean, 2010, by type of hazard, number of events and deaths, affected population and cost in million USD

| Type of hazard | Number of events | Death toll | Affected population | Cost in million USD |
|-----------------|------------------|----------------|---------------------|---------------------|
| Weather-related | 79 | 1,380 | 9,318,685 | 9,840 |
| Geological | 6 | 223,093 | 4,214,934 | 38,783 |
| Epidemiological | 13 | 1,211 | 334,740 | 565 |
| Total | 98 | 225,684 | 13,868,359 | 49,188 |

Source: ECLAC (2010b).

However, even with substantially lower economic impacts than those of 2010, the economic cost of disasters is not only borne by the governments of the region who must assign a large number of resources to restoring services and infrastructures, but also and most particularly, by the households and individuals who lose part or all their assets and livelihood.

It must be stressed that, according to Chart 2, the volume of individuals affected by weather-related disasters is usually higher than for other hazards. This is a very relevant fact, since population groups who have lost their homes and

livelihoods are the ones who will most require humanitarian assistance.

Similarly, six of every 10 dollars counted as an economic loss of disasters that have occurred in the last 40 years have been associated with weather phenomena. For these countries as a whole, disasters in LAC have represent an average of 0.63% of the joint Gross Domestic Product (GDP) from 1970 to 2008. The Caribbean sub-region has the highest cost, with 3.52% of its sub-regional GDP (ECLAC, 2010b). In absolute terms, South America has the highest average cost, with nearly 6 billion dollars.



Since the 1972 earthquake of Managua, Nicaragua, ECLAC has been working to quantify economic aspects of disasters by developing a methodology for damage estimation once a disaster occurs.

For further information on the economic impact caused by humanitarian crisis situations generated by natural disasters, visit ECLAC-Economic and Social Disaster Assessment Unit's webpage.

Available online:

<http://www.eclac.cl/cgi-bin/getprod.asp?xml=/noticias/paginas/1/38061/P38061.xml&xsl=/tpl/p18f.xsl&base=/tpl/top-bottom.xsl>.

Chapter 2

Data collection and analysis during the preparedness phase

2.1. Overview

- The preparedness phase is the time preceding a crisis, when a disaster has not yet occurred. It represents an unique opportunity to plan the potential response and conduct prevention actions that may help reduce damages when the event occurs and guide the subsequent recovery process.
- It is the most important preventative opportunity for the country to be able to carefully identify and analyse areas prone to natural hazards and the characteristics of the population exposed to them.
- This phase also provides the opportunity to gather the necessary information to develop specific **indicators*** that enable the detection of potential hazards, their characteristics, spatial distribution and scope, as well as socio-demographic indicators that demonstrate the vulnerability of the population exposed to their effects.
- This is a period that provides an opportunity to develop and coordinate actions by civil society, the various national/local public agencies, NGOs, and other humanitarian actors, to ensure the modelling of risk scenarios and implement an organized information system usually known as **Early Warning System (EWS)***.
- The development and socialization of an EWS also contributes to the design, with enough notice, of a Contingency Plan to be activated in future humanitarian crisis situations.
- This stage has a unique advantage with respect to other emergency phases established by UNFPA as a reference to plan data collection and analysis activities for emergencies. During the preparedness phase, the production of information and evidence to implement a Contingency Plan can be done without the pressure and urgency that is characteristic of the other phases –acute, chronic, and post-crisis–. Therefore, it is possible at this moment to implement actions to ensure comprehensive national coordination by the community and the various humanitarian actors, as well as monitoring the proper management of the information available in the country.



For additional information on this section, please refer to: *Handbook for the implementation of the Guidelines (Training Workshops by phase)*.

2.2. Collection and Analysis of Relevant Information for the Preparedness Phase

The essential idea is that we should prepare to face a humanitarian crisis by gathering and analysing vital information in advance. The aim is to ensure that, in the event of an emergency, we can have a **baseline*** against which to compare and quickly assess the impact of the disaster, in terms of people affected and damage, as a first diagnosis to guide the urgent response and assist the communities affected by the disaster.

2.2.1. What information needs to be collected and analysed in this preliminary phase?

2.2.1.1. Information on natural hazards

First of all, information on potential natural hazards must be collected and analysed. Chart 3 presents a series of web resources that provide natural hazard forecasts, event monitoring reports, as well as related conceptual and methodological documents that may help strengthen the capacity to anticipate disaster events in the LAC region.

Similarly, information on a country's natural hazards may be obtained from national early warning and monitoring portals developed by public agencies and private organizations, mostly focused on hydro-meteorological, seismic and volcanic hazards in the region.

Chart 4 presents a summary of the major national organizations that produce information on hazards, vulnerability, and risk for use in humanitarian risk situations in LAC countries.

Indeed, given the diversity of particular and specific contexts that characterize the region, the recommendation of UNFPA, in this case, is that each country should consider, select and adapt the examples presented in Chart 3 and 4 below to their national and local reality.

Example 4 provides an instance of the type of hazard information available in a LAC country. It

presents the main Chilean government agencies engaged in the generation of scientific and technical information on natural hazard. The information is produced and disseminated to various public and private levels by different means. Every LAC country has similar types of national agencies in its organizational chart. Given the diversity of individual and specific entities, countries are urged to consider and adapt the above example to their national and local context.

2.2.1.2. Socio-demographic information

In order to initiate activities that would enable preparedness against potential natural hazards likely to occur in an area, municipality or locality, it is essential to have estimates about the population that is likely to be affected, including the number of people, their location, individual characteristics, behaviour patterns, and livelihoods (UNFPA, 2010).

From a human rights perspective, the identification of the population exposed and likely to be affected is a priority action. For this reason, their main characteristics must be obtained in detail in order to differentiate population groups (women, children, adolescents, seniors, people with disabilities, people living with HIV or any chronic disease, etc.). They are the ones that may potentially require special assistance in humanitarian crises.

Therefore, it is important to take advantage of the relative calm before a disaster occurs to perform a detailed diagnosis of the existing risk situations that could eventually affect the population.

Diagram 1 (see p. 39) presents a summary of the suggested socio-demographic information that needs to be collected in the preparedness phase, socio-demographic indicators for the preparation of an early warning information system and the data sources that supply this information.

But, what is an indicator? According to Simone Cecchini (2005:11), while there is not a single definition of the term indicator, in general terms

Chart 3. Selected web resources with information on hazards in Latin America and the Caribbean¹⁰

| Examples of web resources and contents (1) | Websites |
|---|---|
| Caribbean Disaster Emergency Management Agency (CDEMA). | www.cdema.org |
| National Disaster Prevention Centre (CENAPRED), Mexico. | http://www.sica.int/cepredenac/ |
| Coordination Centre for the Prevention of Natural Disasters in Central America (CEPREDENAC): Contains information on disaster prevention activities. | www.cenapred.gob.mx |
| Regional Disaster Information Centre (CRID): Contains web documents, newsletters, statistics. | http://www.cridlac.org/index.shtml |
| Disaster Inventory System (DesInventar America): A historical record of the effects of disasters by selected countries. | http://online.desinventar.org |
| Division of Early Warning and Assessment for Latin America and the Caribbean, United Nations Environment Programme (DEWA): Contains documents. | http://www.pnuma.org/geodatos/ |
| Network of Social Studies Network on Disaster Prevention in Latin America (LA RED): Documents and publications. | http://www.desenredando.org |
| Office for the Coordination of Humanitarian Affairs (OCHA): Mapping by country and type of hazard. | http://www.reliefweb.int |
| Humanitarian Information Network for Latin America and the Caribbean (REDHUM): Coordination tools, reliable and useful information for decision makers on disaster management. | www.redhum.org |
| United Nations Environment Programme (UNEP): Documents. | http://www.pnuma.org/geodatos/ |
| United Nations Office for Disaster Risk Reduction (UNISDR). Latin America and the Caribbean Unit: Documents, newsletters, general information. | http://www.eird.org/americas/index.html |
| World Food Programme (WFP) Early Warning System for Central America (SATCA): Its basic purpose is to strengthen the capacity to anticipate potential natural hazards in Central America to improve the preparedness, mitigation* , and humanitarian response. To this end, SATCA strengthens Early Warning Systems in Central America through a regional web platform dedicated to the monitoring of potential natural hazards. | http://www.satcaweb.org/alertatemprana/inicio/alertatemprana.aspx |
| World Meteorological Organization (WMO). | http://data.un.org/Explorer.aspx?d=CLINO |

Note (1): In alphabetical order according to the acronyms of each organization.
Source: UNFPA (2012).

¹⁰ Chart 3 includes examples of web resources on hazards. Given the diversity of individual and specific contexts of the region, it is suggested that each country consider, select and adapt the examples to their national and local realities.

Chart 4. Examples of information –data sources, humanitarian actors and national organizations that produce information to be used in humanitarian risk situations in Latin American and the Caribbean¹¹

| Examples of information-sources | Examples of national agencies |
|--|---|
| <ul style="list-style-type: none"> • Spatial Data Infrastructure (SDI) | <ul style="list-style-type: none"> • National Geographic Institutes |
| <ul style="list-style-type: none"> • Information for prevention and mitigation | <ul style="list-style-type: none"> • Organized civil society, community • Humanitarian actors |
| <ul style="list-style-type: none"> • Information on hazards | <ul style="list-style-type: none"> • National sectoral agencies on <ul style="list-style-type: none"> - Meteorology - Geology and mining - Seismology, volcanology - Hydrography and oceanography - Environment |
| <ul style="list-style-type: none"> • Information on vulnerability and risk | <ul style="list-style-type: none"> • National Universities • Research Centres and Institutes on geographical, agricultural, environmental, natural resources areas |
| <ul style="list-style-type: none"> • Socio-demographic information <ul style="list-style-type: none"> – Household surveys and counts, Censuses and Population projections – Specific sample surveys – Administrative records: <ul style="list-style-type: none"> - Land use maps | <ul style="list-style-type: none"> • National Statistics Institutes • National sectoral agencies, such as Ministries of Health • National sectoral agencies: <ul style="list-style-type: none"> - Ministries of Housing and Urban Development; - Ministries of Planning |
| <ul style="list-style-type: none"> - Vital Statistics - Hospital Statistics - Resource Statistics | <ul style="list-style-type: none"> - Ministries of Health |
| <ul style="list-style-type: none"> - Statistics of establishments, buildings, schools facilities and infrastructure - School enrolment figures | <ul style="list-style-type: none"> - Ministries of Education |
| <ul style="list-style-type: none"> - Hydro-meteorological networks - Coastal, port, maritime, fluvial and lacustrine infrastructure - User registry | <ul style="list-style-type: none"> - Ministries of Public Works |
| <ul style="list-style-type: none"> - Routes, roads and bridges network | <ul style="list-style-type: none"> - Ministries of Transport |
| <ul style="list-style-type: none"> - Transport network | <ul style="list-style-type: none"> - Ministries of Transport |
| <ul style="list-style-type: none"> - Electrical power and fuel systems | <ul style="list-style-type: none"> - Ministries of Telecommunications |
| <ul style="list-style-type: none"> - Security-Shelters | <ul style="list-style-type: none"> - Military, Police Forces and Fire Department |
| <ul style="list-style-type: none"> - Mobile telephone services | <ul style="list-style-type: none"> - Ministries of Telecommunications |
| <ul style="list-style-type: none"> - Other sources | <ul style="list-style-type: none"> - Ministry of Foreign Affairs |

Source: UNFPA (2013).

¹¹ Chart 4 includes examples of information and data sources that can be produced by various humanitarian actors in LAC. Given the diversity of individual and specific contexts of the region, it is suggested that each country consider, select and adapt the examples to their national and local realities.

Example 4. Main official institutions for the dissemination of information on hazards and support materials to generate cartographic studies, Chile

| Institution | Type of information | | Coverage | | | Dissemination and access | | Web |
|--|---------------------------------|---------------------------|----------|----------|-----------|--------------------------|----------|----------------------------------|
| | Statistics and studies | Cartographic | National | Regional | Community | Free in library | Purchase | |
| Chilean Directorate of Meteorology (DMC) | Statistical weather information | Weather charts | X | | | X | | www.Meteochile.cl |
| National Service of Geology and Mining | Specific studies | Geological maps | X | X | | X | X | www.sernageomin |
| Seismological Service of the University of Chile | Seismic Statistics | | X | X | X | X | | www.dgf.uchile.cl |
| National Network of Accelerographs | | | | | X | X | X | www.cec.uchile.cl/rendic/red.htm |
| Hydrographical and Oceanographic Service of the Navy | Coastal weather stations | | X | X | X | X | X | www.shoa.cl |
| | | Tsunami Inundation charts | | | X | | | |
| Military Geographical Institute | | Print and digital mapping | X | X | X | X | X | www.igm.cl |
| | Atlas and studies | | | | X | X | X | |
| Aerophotogrammetric Service | | Digital and printed plans | | X | | | X | www.SAF.cl |
| | | Aerial photographs | | X | | | X | |
| | | Satellite images | | | X | | X | |

Source: UNFPA (2012).

an indicator is “an instrument developed from a set of numeric values or ordinal and nominal categories that summarizes important aspects of a phenomenon for analytical purposes”.

Chart 5 presents a summary of the types of indicators included in these Guidelines and their function.

Moreover, indicators may be disaggregated based on several dimensions, such as geographic location, gender, age, among others. Indicators that provide total or national averages

are useful because they convey an overview of the situation of the country concerning a particular phenomenon, such as population distribution in a given area and poverty levels.

However, total or average indicators tend to mask important differences in the characteristics or attributes of households and the population, including household size, sex, age group or specific population group: ethnicity, person with disability, etc. The lack of disaggregated data reflecting these gaps severely hampers policy-making (Cecchini, 2005:19-20).

Chart 5. Examples of indicators included in the *Guidelines* by type and function

| Types and functions of the indicators included in the <i>Guidelines</i> | |
|---|---|
| <p>FACTS: Try to show the condition of a phenomenon or its changes over time. Example: the literacy rate.</p> | <p>PERCEPTIONS: Reflect the perception of a community –or particular groups and individuals– of an objective condition. Example: the satisfaction of a community with respect to health care.</p> |
| <p>QUANTITATIVE: Derived from methods that collect information mainly in numerical format or pre-coded categories. They are based on the selection of all observation units in a given area (surveys and administrative records) or the random selection of units, using probabilistic representative samples (household surveys).</p> | <p>QUALITATIVE: The information used for their construction comes mainly from descriptive texts without, or with little, categorization and pre-coding. However, descriptive responses may be grouped into categories, such as “low”, “medium” or “high” level of satisfaction and presented numerically. The choice of the sampling method (random or deliberate) varies depending on the purpose of the study and, in many cases, there is no clear selection procedure.</p> |
| <p>ABSOLUTE: Account for magnitudes and are often used as denominators for rates that require consideration of the population exposed to the risk of a phenomenon occurring.</p> | <p>RELATIVE: Facilitate comparisons between, for example, various geographical areas of the country.</p> |
| <p>SIMPLE: The resulting figures are for a single variable. For example: percentage of population below the poverty line; average number of people per household. They are used to analyse a particular aspect of the population.</p> | <p>COMPOUND: The result of a weighted combination of indicators. The resulting figure refers to more than one variable. For example, life expectancy at birth.</p> |

Source: UNFPA (2013), adapted from Simone Cecchini (2005:13-20).

Diagram 1 suggests some of the possible “cut-off variables” for the indicators that should be developed during the preparedness phase, broadly summarized below:

- Size of household.
- Head of household.
- Sex.
- Age groups.
- Education level.
- Occupation.
- Industry/Sector of economic activity.
- Poverty level.

Moreover, the construction of indicators for use in humanitarian crises should also account for the degree of breakdown or disaggregation by geographical areas. Again, it should be noted that the total or average indicators tend to mask important differences between various different geographical areas, and the availability of disaggregated data reflecting those gaps is crucial for the design of a preventive response system in humanitarian crises.

Diagram 1 suggests possible “breakdowns by geographical area” for the necessary indicators proposed for the preparedness phase, broadly summarized below:

- Administrative units.
- Urban and rural areas.
- Geo-climatic areas.

Ideally, indicators should be developed for each administrative level with decision-making power on the use and allocation of resources to prevent, mitigate and overcome humanitarian crises. These administrative units include states, regions, departments, provinces, municipalities, districts, clusters, localities, etc.

As mentioned in Chart 7 (see p. 45), one of the main advantages of population censuses and counts is the possibility to disaggregate the information gathered to the lowest levels of census disaggregation, such as fractions, radios and census tracks. This potential influences the overall capacity of these data sources to reconstruct

and develop the indicator for the desired territorial levels, including urban-rural disaggregation.

Regarding rural-urban disaggregation, it is important to note that there are different definitions of urban and rural in LAC countries. Even in some cases, the definitions in one country vary in time and from source to source (Cecchini, 2005:20. Note 15)¹².

A third type of viable geographical disaggregation is the division into geo-climatic zones characterized by different topography, precipitation rates and soil. This information is essential when predicting the damage and needs to be covered during an emergency –based on the generation of population data that may eventually and potentially be affected and its precise location in the territory, prior to the occurrence of a disaster.

Clarity* on these geographic differences contributes to enhance the **accuracy*** and usefulness of the information for decision-making in humanitarian crises, especially if the socio-demographic data relates to geographic physical information by means of a Geographic Information Systems (GIS), whose main strengths are presented in Chart 13 (see p. 54).

However, the type and level of disaggregation finally selected by the country to build its own indicators will depend on its particular context and conditions of production of socio-demographic data.

Also, by recognizing the heterogeneity of situations of LAC countries in terms of the availability of socio-demographic statistical information and the diverse coverage and quality of data sources, these Guidelines propose a prioritization of the indicators to be collected and

¹² For example, the census definition of “rural” LAC range from those based on the number of people living in a certain locality (ranging from less than 200 inhabitants in Cuba and 2,500 and Mexico); the number of people combined with the absence of minimum urban conditions (e.g., paved soil or electric lighting) in Honduras, Nicaragua and Panama; the number of people combined with the percentage of people engaged in secondary activities (Chile); the number of contiguous houses (less than 100 in Peru) to purely administrative or legal definitions (Brazil, Colombia and other) (Cecchini, 2005:20. Note 15).

analysed during the preparedness phase, as presented in Chart 6 below.

This ad hoc classification is presented as a suggestion to help guide the work of countries in ad-

ressing humanitarian crises. The final set of indicators to be selected and developed during this early stage is ultimately decided by each country and will depend on its conditions for the production of socio-demographic statistical data.

Chart 6. Suggested priorities for the construction of indicators to be included in the preparedness phase

| Types of indicators included in the <i>Guidelines</i> and priorities for its construction | |
|---|---|
| ESSENTIAL | <p>These are core indicators, the indispensable minimum. They are to be built with the highest priority, among the broad spectrum of indicators suggested.</p> <p>Together, these indicators enable a preliminary assessment of the size and geographic distribution of the population and households that could be affected by a disaster –in particular, specific groups such as children, adolescents and youth; women; the elderly; people with disabilities who require special care–, as well as an idea of the local responsiveness in terms of health care services, building infrastructure (hospitals and schools), specialized human resources, transport and communications, in the event of a humanitarian crisis.</p> |
| RECOMMENDED | <p>These are second priority indicators that, in general, contribute to characterize populations by level of welfare or vulnerability, or likeliness to suffer certain health conditions –epidemic or endemic–.</p> |
| DESIRABLE | <p>These third-priority indicators may be challenging for the LAC countries in some cases due to the limited availability of data sources on the responsiveness of humanitarian actors. However, they are considered helpful in optimizing the response in humanitarian crises.</p> |

Source: UNPFA (2013).

In summary, when the time comes to prioritize the information and indicators, it is suggested that the following should have first priority, as they are considered vital and indispensable to begin the development of a risk scenario and the respective mapping:

- Number and distribution of housing and households.
- Population size and distribution.
- Structure by population sex and age, and specific population groups.
- Location of basic social infrastructure in the area of healthcare, education, transports and other services.



For more information on the development of essential indicators, see breakdown in Diagram 1 and: *Operational tools of the Guidelines* (Annex I).

Diagram 1. Necessary socio-demographic data, indicators by relevance criteria and data sources for collection and analysis during the preparedness phase in Latin American and Caribbean countries

| Essential Information | Essential Indicators | | | | Source |
|--|--|--|---|---|---|
| | Name | Unit of analysis | Cut-off variables | Level of disaggregation | |
| <ul style="list-style-type: none"> • Number and distribution of housing and households. | <ul style="list-style-type: none"> • Total housing. • Total household. | <ul style="list-style-type: none"> • Housing. • Households. | | <ul style="list-style-type: none"> • Administrative unit(s). • Rural area and urban area. • Geo-climatic areas. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Population, household and housing census. • Intercensal population estimates. |
| <ul style="list-style-type: none"> • Size and distribution of households and population. | <ul style="list-style-type: none"> • Average household size. • Size of total population. • Total population density. | <ul style="list-style-type: none"> • Households. • Population. | | <ul style="list-style-type: none"> • Administrative unit(s). • Rural area and urban area. • Geo-climatic areas. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Population, household and housing censuses. • Intercensal population estimates. |
| <ul style="list-style-type: none"> • Structure by sex and age of the population living in the areas frequently affected by natural events or involuntary displacement of individuals. | <ul style="list-style-type: none"> • Size of population at risk. • Masculinity rate of population at risk. • Density of population at risk. • Total number of: women of all ages, women of reproductive age, children, adolescents and youth, senior adults, people with disabilities, women-headed households, child-headed households. | <ul style="list-style-type: none"> • Population at risk. | <ul style="list-style-type: none"> • Sex. • Age. • Head of household. • Disability. | <ul style="list-style-type: none"> • Administrative unit(s). • Rural area and urban area. • Geo-climatic areas. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Population, household and housing censuses. • Intercensal population estimates.. |
| | | | | <ul style="list-style-type: none"> • Administrative unit(s). | <ul style="list-style-type: none"> • Population projections. |
| | | | | <ul style="list-style-type: none"> • Administrative unit(s). | <ul style="list-style-type: none"> • Population projections. |

Diagram 1. Necessary socio-demographic data, indicators by relevance criteria and data sources for collection and analysis during the preparedness phase in Latin American and Caribbean countries (*continued*)

| Essential Information | Essential Indicators | | | | Source |
|--|---|---|---|---|--|
| | Name | Unit of analysis | Cut-off variables | Level of disaggregation | |
| <ul style="list-style-type: none"> • Location of basic social infrastructure (education, health, social support) general and by location in risk zones. | <p>Health</p> <ul style="list-style-type: none"> • Number, distance, and accessibility of health services (hospitals, health centres, among others). • Number and type of health service staff (physicians, nurses, midwives, psychologists, social workers, etc.). • Number and location of health facilities available by specific service (maternal and infant care, obstetric care, emergencies, ambulances, etc.). • Ratio of population by healthcare service and healthcare provider. <p>Education</p> <ul style="list-style-type: none"> • Number of schools and capacity by level (elementary and secondary). • Ratio of boys and girls per school, teacher and educational level. <p>Transportation</p> <ul style="list-style-type: none"> • Availability of paved roads. • Major means of transportation (mechanical, animal, river, etc.). <p>Other services</p> <ul style="list-style-type: none"> • Clean water. • Electricity. • Waste water. • Community centres. • Stores, markets and shopping centres. • Security services. • Support services for victims of violence. • Mobile telephony services. | <ul style="list-style-type: none"> • Hospitals, health centres, and the like. • Health providers. • Schools and others. • Staff in education services. • Children who attend educational services. | <ul style="list-style-type: none"> • Specific health services. • Teaching levels. | <ul style="list-style-type: none"> • Administrative unit(s). • Rural area and urban area. • Geo-climatic areas. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Administrative records; population, household, and housing censuses. |

Diagram 1. Necessary socio-demographic data, indicators by relevance criteria and data sources for collection and analysis during the preparedness phase in Latin American and Caribbean countries *(continued)*

| Recommended Information | Recommended Indicators | | | | Source |
|--|--|---|---|---|--|
| | Name | Unit of analysis | Cut-off variables | Level of disaggregation | |
| <ul style="list-style-type: none"> • Number and distribution of housing and households by characteristics. | <ul style="list-style-type: none"> • Total housing units according to their construction materials (floors, walls, and roofs). • Total households, according to sanitary conditions (water supply and source, toilet availability with water discharge into the public sewage network), and by overcrowded conditions. | <ul style="list-style-type: none"> • Housing. • Households. | <ul style="list-style-type: none"> • Construction materials of housing. • Sanitation conditions of households. • Overcrowding of households. | <ul style="list-style-type: none"> • Administrative unit(s). • Rural area and urban area. • Geo-climatic areas. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Population, household and housing census. • Intercensal population estimates. |
| <ul style="list-style-type: none"> • Socio-economic characteristics of the population residing in risk-prone areas: schooling, occupation, economic activity. | <ul style="list-style-type: none"> • Literacy rate. • Population distribution by economic activity sector. • Total school age children. • Schooling rate by sex and level of education. • Access to information and dissemination sources (radio, TV, landline and mobile telephone, etc.). | <ul style="list-style-type: none"> • Population. | <ul style="list-style-type: none"> • Can read and write. • Highest level of education. • Occupation. • Industry/Sector of economic activity. • Access to radio, TV, mobile and landline phone, among others. | <ul style="list-style-type: none"> • Administrative unit(s). • Rural area and urban area. • Geo-climatic areas. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Population, household and housing censuses. • Household surveys. |
| <ul style="list-style-type: none"> • Socio-cultural characteristics of the population (indigenous language speakers, religion, ethnic group). | <ul style="list-style-type: none"> • Size and distribution of the population: <ul style="list-style-type: none"> - By ethnic group. - By place of birth. - By spoken language. - By religious affiliation. | <ul style="list-style-type: none"> • Population. | <ul style="list-style-type: none"> • Ethnic group. • Birthplace. • Spoken language. • Religious affiliation. | <ul style="list-style-type: none"> • Administrative unit(s). • Rural area and urban area. • Geo-climatic areas. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Population, household and housing censuses. • Household surveys. |

Diagram 1. Necessary socio-demographic data, indicators by relevance criteria and data sources for collection and analysis during the preparedness phase in Latin American and Caribbean countries *(continued)*

| Recommended Information | Recommended Indicators | | | | Source |
|--|---|---|--|--|---|
| | Name | Unit of analysis | Cut-off variables | Level of disaggregation | |
| <ul style="list-style-type: none"> • Health issues and priority elements (reproductive health, HIV, mortality, morbidity, epidemics, vaccination coverage, population nutrition level); population reproductive patterns. | <ul style="list-style-type: none"> • Number of births. • Number of pregnant women. • Number of deaths by age and sex (infants, mothers of specific ages). • Life expectancy at birth. • Knowledge of contraceptive methods. • Contraceptive method prevalence rate among adults and youth. • Vaccination coverage. • Nutritional conditions of children and pregnant women. • Common and epidemic diseases. • Number/ frequency of children deaths due to diarrhoea. • Knowledge of HIV/AIDS. • Prevalence of HIV/AIDS. • Prevalence of other sexually transmitted diseases. • Frequency of violence by type. • Number of female victims of violence (sexual, psychological, etc.) by type of aggressor. | <ul style="list-style-type: none"> • Total population. • Female population. • Population under 18. | <ul style="list-style-type: none"> • Sex. • Age. • Nutritional status. • Vaccination status. • Health status. • Knowledge and use of contraceptive methods. • Pregnancy status. | <ul style="list-style-type: none"> • Administrative unit(s). • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Health Information Systems Surveys. |
| <ul style="list-style-type: none"> • Well-being, income level and vulnerability indicators of at-risk population. | <ul style="list-style-type: none"> • Ratio of population under the poverty line by sex and age. • Ratio of population with access to potable water and electricity. | <ul style="list-style-type: none"> • Population. | <ul style="list-style-type: none"> • Poverty. • Access to potable water and electricity. | <ul style="list-style-type: none"> • Administrative unit(s). • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Population, household and housing censuses. • Household surveys. |

Diagram 1. Necessary socio-demographic data, indicators by relevance criteria and data sources for collection and analysis during the preparedness phase in Latin American and Caribbean countries *(continued)*

| Desirable Information | Desirable Indicators | | | | Source |
|---|--|--|---|--|--|
| | Name | Unit of analysis | Cut-off variables | Level of disaggregation | |
| <ul style="list-style-type: none"> • Responsiveness (of governments, NGOs, UN agencies, etc.) in potentially affected areas. | <ul style="list-style-type: none"> • Number of NGOs and other concerned humanitarian actors with the capacity to work in humanitarian situations for: <ul style="list-style-type: none"> - Logistics and transportation. - Human and material resource provision. - Storage capacity. - Communications facilities. | <ul style="list-style-type: none"> • Humanitarian actors. | <ul style="list-style-type: none"> • Capacity: <ul style="list-style-type: none"> - Logistics. - Transportation. - Provision of human resources. - Provision of material resources. - Storage (stock). • Communications facilities. | <ul style="list-style-type: none"> • Administrative unit(s). • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Country risk management team (COEs, Civil Defence, etc.). • OCHA, UN System, Country Humanitarian Aid Coordinator. • Administrative records. |

Source: Compiled from UNFPA (2010:28-30, Exhibit 2.2).



For more information on the development of each basic indicator in Diagram 1, see breakdown in: *Operational tools of the Guidelines (Annex I, Part 1)*.



For more information on the development of the technical metadata sheets, refer to:
Operational tools of the Guidelines (Annex I. Part 2).

The construction of each indicator includes the development of the respective technical metadata sheets. Metadata generally responds to questions such as who, what, when, where, why and how, about aspects of the data documented. The inclusion of metadata in the system that is being built is a valuable contribution to the further management of information.

2.2.2. What socio-demographic data sources need to be taken into account?

The data sources used to collect the socio-demographic information required for preparedness are predominantly quantitative in nature, i.e., data is generated from observations of phenomena presented by the population and collected through specific methodologies and procedures, subject to evaluation and captured in tables or frames, pre-sorted into groups or classes. Such data sources include:

- Population, household, and housing censuses.
- Intercensal estimates (when available).
- Population projections.
- Household surveys.
- Administrative records.

2.2.2.1. Population, Household and Housing Censuses, and Intercensal estimates

A population, household, and housing census is the most important civil function a society can carry out, since it involves the entire population (CELADE, 2011B). Its strengths and limitations are systematized in Chart 7. Its universal coverage and high level of disaggregation provide for the construction of an accurate view of a variable at the desired territorial scale, especially at the local level. It involves an exhaustive headcount and profiling of all the inhabitants of a territory and their housing (Silva and Espina, 2010). Consequently, census results are the most complete source of information about a country and its population.

Nonetheless, the usual ten years between each national population census is an excessively long period when it is indispensable to have updated demographic information available. Intercensal estimates can solve the ever-increasing demand for updated and sufficiently disaggregated census information by local or territorial agencies on their area. Mexico and Brazil are some of the LAC countries conducting basic censuses or population counts every five years (CELADE, 2011a:17 and 23).

As shown in Chart 7, NSIs are national organizations whose primary functions and mission include the design and implementation of population censuses and counts, as well as the analysis and dissemination of the results.



UNFPA and CELADE-Population Division of ECLAC have undertaken efforts to support the census projects in the countries in the region in order to obtain greater coverage surveys, and better information and opportunity.

For more information about population censuses, see CELADE-ELAC Population Division web site: <http://www.eclac.cl/celade/censos2010>.

Chart 7. Strengths and limitations of censuses and counts

| Strengths | Limitations |
|--|--|
| <p>They provide data on the entire resident population in a country by administrative area and often by locality of residence at a given period.</p> | <p>Depending on the amount of time since the last survey, the information may be outdated.</p> |
| <p>They allow a breakdown of the information according to specific categories, and by administrative unit, area, or locality.</p> | <p>For several reasons, some censuses lack complete coverage such that the results have to be adjusted prior to publication. This renders the reconstruction of information for parts of the country rather difficult.</p> |
| <p>They provide details on key elements of population dynamics (fertility, mortality and migration), and thus lay the groundwork for future population projections.</p> | <p>Census data does not provide all the information that may be needed for contingency planning* for estimation of food needs.</p> |
| <p>They provide details on the characteristics of households and housing, and therefore, on the living conditions of the population, in particular on vulnerability conditions.</p> | <p>They do not provide information on behaviours, aspirations, motivations or consequences of the effects of disasters on individuals.</p> |
| <p>They provide warning signals to detect potential humanitarian crises such as high population densities, precarious settlement conditions, etc.</p> | |
| <p>Census mapping enables the collection of valuable information on the location of the population affected, by simply adding the population in the administrative areas (municipalities).</p> | |
| <p>The latest census is the framework for the sample design for household surveys.</p> | |
| <p>They are the official data source for country or regional planning.</p> | |
| <p>It is a source of information that may be better preserved and available for the Contingency Plans of the small units of a country's territory.</p> | |

Source: UNFPA (2010:20).

2.2.2.2. Population Projections

The use of population projections is useful when the census information available is outdated and there is a need to estimate the current population in a zone affected by a contingency.

The component method is generally used to prepare a population projection. It consists of an estimate of the population expected in a country, region or state, according to a set of assumptions regarding the behaviour of birth, mortality, and migration variables. This method requires the availability of vital and migration statistics,

with good coverage and quality, applied to a population base obtained by adjusting the results of the latest population census so that they are as close as possible to the actual population numbers at a given time.

Similarly, population projections may be developed by using symptomatic variables, a methodology to meet the challenge of updating the total population with variables related to the total population change, that is, those with a greater correlation to population size and evolution –which are not the vital facts but are of high quality and permanently available in the

Chart 8. Strengths and limitations of population projections

| Strengths | Limitations |
|--|---|
| Provides a base from which to estimate the need for Contingency Plans. | Projections made on the basis of this information become less reliable with the passage of time since the censuses were first taken. |
| They may be available online and, in some cases, may provide information for each projection year. They are broken down by age and sex, which facilitates projections and the identification of sub-populations that require priority attention. | Many of the projections available do not include information on the methods used and the assumptions on which they are based, and for this reason it is not possible to assess their quality. |
| | Most projections are available in five-year groups, and the quality of Contingency Plans is better when annual population information is used. |
| | Generally, projections are only made at a national level, and are occasionally broken down by urban-rural-and city zones; and a Contingency Plan needs annual sub-national projections. In humanitarian situations, the trend has been to take several intermediate projections and interpolate and generate a distribution ratio by administrative unit and age. In order to estimate needs, both the patterns observed in the past, as well as the theoretical points of reference may be used for specific objectives. |

Source: UNFPA (2010:22-23).

country. For example, we refer to basic listings of utilities (electricity and water) customers, school enrolment, voter registration, or housing construction statistics, among other records. This last methodology is particularly useful if the populations have significant migratory movements.

A summary of the main strengths and limitations of population projections is shown in Chart 8.

As shown in Chart 7, at a national level, the NSIs are the agencies in charge of the development of population projections and estimates, as well as the analysis and dissemination of their results.

Since this is a demographic specialty, there is likely no expertise in local response teams. Nonetheless, LAC has information packages to conduct these drills, as well as databases for on-line consultation.



For more information on projections, please refer to the **CELADE-ECLAC Population Division website:**

http://www.eclac.cl/celade/proyecciones/basedatos_BD.htm

2.2.2.3. Household Surveys

Many countries conduct sample household surveys on a regular basis, annually or biannually, which provides well-detailed and highly updated information on the population.

Data obtained through sampling is only representative for the most aggregated units: national and federal agencies. This means that it is not representative for lower levels of aggregation. In general, they cover aspects concerning household poverty, population nutrition, reproductive behaviour, employment conditions, consumption, and living conditions, among other dimensions.



Chart 9 summarizes the main strengths and limitations of household surveys.

As shown in Chart 7, at a national level, the NSIs are agencies with the technical and professional capacity to design and implement household surveys, as well as analyse and disseminate their results. It is also possible to find sectoral domains such as those associated with the Ministries of Health, that also conduct specific surveys on a population's sexual and reproductive health, nutrition surveys, etc.

2.2.2.4. Administrative Records

Administrative records are useful in guiding the design of contingency and preparedness plans in responding to humanitarian crises. Examples of this information are vital statistics –birth and death–, health-disease, school enrolment, educational establishments, infrastructure, transportation, etc. This data is generally dispersed and stored at various public offices. As shown in Chart 7, at a national level, each sectoral agency –Ministries of Health, Education, Infrastructure and Housing, Transportation and Communications, etc.– have the technical and professional capacity to generate information records on their sphere of competence. For this reason, all

Chart 9. Strengths and limitations of household surveys

| Strengths | Limitations |
|---|--|
| The cost is less than a census, and therefore, they are taken and updated more frequently. | The validity of data depends on the sampling method, according to the level of aggregation. Generally, data is valid for a very aggregate level, and therefore the indicators are not usually representative of lower levels of aggregation (municipality, region, location). Generally, they are representative of the first and second administrative level. |
| They provide detailed information on the aspects associated with behaviours, aspirations, and motivations for the actions of the population, and thus they can enhance the capacity to anticipate, which is essential for contingency planning. | The results of the analyses cannot be generalized or applied to contexts other than those where the survey is taken. |
| They provide essential information for the formulation of Contingency Plans and the orientation of Early Warning Systems, because they enable a focus on vulnerable populations. | There are generally differences in the methods of collecting, capturing, and processing of surveys organized by various government sectors, which makes them difficult to use in Contingency Plans. There is no standardization of terminology or approaches. |
| They can focus on the specific aspects of the vulnerability of the population to focus on sub-populations (or sub-groups), and their inclusion in Contingency Plans. | It is difficult to harmonize the data from the various sectoral surveys, as not all are available, and the methods used to collect, process, and store data are different. |
| Depending on the information obtained from surveys, they can reveal early signs of potential social system breakdowns that can lead to humanitarian crises. | |

Source: UNFPA (2010:23-24).

actions to be conducted with this type of information and data sources require inter-governmental articulation to coordinate, monitor, and supervise data collection and analysis until a desirable statistical integration is achieved.

A summary of the main strengths and limitations of administrative records is presented in Chart 10.

2.2.3. What priority should quantitative data sources be granted?

As mentioned in the previous section when describing the advantages and limitations of each data source, LAC countries have heterogeneous modes of production of statistical information,

which is obtained for different time periods and for different levels of territorial breakdown. Consequently, we must also bear in mind that, when selecting the socio-demographic indicators to construct and analyse, we also need to prioritize the data sources to be used, based on the data available in each country.

Not all data sources mentioned in the previous section are used simultaneously. Indeed, it is suggested to first produce and analyse indicators that use the census as a **primary data*** source. This is based on the advantage provided by transferring that data to a Geographic Information System (GIS) for very low levels of geographical disaggregation, whose mapping revealing demographic patterns of territorial

size and distribution, which is useful for making decisions about the degree of vulnerability of certain population groups.

Census data provides socio-demographic information for a given moment in time –the census reference date–, but as time passes, this information becomes obsolete and needs to be updated. In this case, population data based on population projections, contributes to updating the total population and spatial distribution values based on population estimates by calendar year. However, it should be noted that this update is only applicable to higher administrative levels, but can barely meet information needs at the local level.

First priority information includes the construction of indicators derived from administrative records that provide information on the resources available in physical infrastructure and material/human

resources in the health, transportation, education and communications sectors. Again, if this information is available at the local level, the advantage offered by the transfer of data into a GIS, contributes to mapping relationships between the resources available and the potential demands of the population in an emergency.

In addition, although suggested as second priority sources, the need for statistical information to characterize the population in terms of the labour market, poverty levels, living conditions, reproductive behaviour and other relevant dimensions, household surveys are an appropriate data source and, in some LAC countries, can even compensate for the lack of census data. As mentioned above, indicator results constructed from household survey data are only representative for more aggregated territorial units, even when they may be managed using a GIS.

Chart 10. Strengths and limitations of administrative records

| Strengths | Limitations |
|--|--|
| They offer ample information on various services, such as the transportation and communications infrastructure that is essential to outline possible response scenarios. | They are usually incomplete sources that are managed inefficiently, and are also outdated for lack of a staff to maintain them. Therefore, their coverage and quality can vary considerably from one administrative unit to another and from one period to another, making it very difficult to incorporate them into a single database. |
| If the information they provide is updated, they may be used to prepare Contingency Plans, as well as Early Warning Systems. | They contain information on public aspects, but not on private facilities that are equally crucial for preparedness and planning. |
| They are valuable inputs for monitoring in various parts of the country and various aspects such as vital statistics, education statistics, etc. | Access to administrative sources is not always expeditious – lack of central coordination, confidentiality issues, etc.–. |
| | The information must be organized and systematized prior to obtaining any sub-output. |
| | Perhaps the main issue is that administrative records are kept in the corresponding offices in the form of raw data, even in their original formats, which would require the time consuming task of gleaning the data from them to organize a database, making it very costly to include them in the preparedness phase and Contingency Plans. |

Source: UNFPA (2010: 25).

Chart 11 presents an indicative summary of the prioritization suggested to develop and build these indicators, taking into account the purpose of the data source, the moment that the information is produced and the level of disaggregation that can be obtained.

However, this ad hoc classification is aimed at guiding the work of countries in the region when selecting data sources to develop the system of essential indicators in this early phase, to enable a proper response to humanitarian crises. The type of data sources that will eventually be used to collect and analyse socio-demographic information during this early stage is ultimately the decision of each country and will depend on the conditions for the production of socio-demographic statistical data.

2.2.4. Why assessing data quality matters

Prior to continuing with the actions required in the preparedness phase, we should stress the importance of assessing the coverage and qual-

ity of the data obtained from the various data sources above. The higher the quality of the information collected, the more efficient the actions of the organizations involved will be in aiding affected populations and estimating potential losses.

Both the NSIs and sectoral agencies in LAC countries have the technical and operational capacity to assess the coverage and quality of the data they produce by always adhering to international best statistical practices issued by the United Nations Population Fund¹³, as they promote data pertinence, **exhaustiveness***, accuracy, **comparability***, coherence, opportunity, **timeliness***, clarity and **accessibility*** criteria.

¹³ ECLAC. (2011). "Propuesta de código de buenas prácticas de las estadísticas en América latina y el Caribe y Plan de implementación para 2012-2013". In: Sixth Meeting of the Statistical Conference of the Americas of the Economic Commission for Latin America and the Caribbean. Bavaro, Dominican Republic, 16-18 November). Available online: <http://www.cepal.org/publicaciones/xml/6/44766/LCL3384e.pdf>.

Chart 11. Basic structure for the collection and analysis of socio-demographic information according to purpose of data sources, dates of production and lowest estimated level of disaggregation

| Priority of use | Source of socio-demographic data | Purpose | Date | Minimum level of disaggregation |
|-----------------|--|--|-----------------|--|
| 1 | Censuses. | Quantify the size and distribution of the population. | Every 10 years. | Census radius (GIS). |
| 1 | Population projections. | Estimate size and population distribution in intercensal periods. | Calendar year. | High and low administrative units. |
| 1 | Administrative records in health, education, transport and communications sectors. | Quantify amount of infrastructure, physical and human resources by sector. | Ongoing. | High and low administrative units/ Local areas. |
| 2 | Household surveys. | Estimate developments and trends of particular phenomena (reproductive health, labour market, living conditions, etc.) in intercensal periods. | <i>Ad hoc</i> . | Urban areas/survey domains. |

Source: UNFPA (2013).

Example 5. Assessing the coverage and quality of data sources in Latin America and the Caribbean

A significant and continuous effort can be noted in LAC countries to generate reliable and timely statistical data for the measurement of socio-demographic phenomena, obtained fundamentally from censuses, surveys and administrative records.

Nonetheless, various assessments to date in the region have pointed to a number of gaps in terms of coverage and/or quality of the information generated from records, and to some extent, household surveys.

In general, the accuracy, timeliness and exhaustiveness of administrative records –such as civil registry, education and employment records, international entry and exit, etc.– may be challenging for some countries in the region.

With regard to surveys, although there has been progress in the implementation of surveys providing information on issues that had not been the subject of research previously in the region, there is still a need to improve the scope of themes, the pertinence of concepts and definitions, the coverage of specific groups and the timely publication of results.

For many countries in the region, the census source, in a sense, represents the only data source in the national statistics system that provides essential information, not only for the planning and development, but also the assessment of sectoral programmes implemented in the country.

In this regard, countries in the region have been developing a significant activity, within the framework of the Statistical Conference of the Americas (SCA-ECLAC), to ensure the quality of the statistical data being produced from census sources.

Source: G. Massé (2010).

Example 5 shown below broadly synthesizes the status of the coverage and quality of LAC data sources around 2010, and the actions that are conducted in the region to improve them.

In particular, LAC shows a statistical reality in which indicators derived from census data are essential. Moreover, in some countries in the region, the census is the only statistical tool available. In effect, the census is not used to its full potential as a data source in the region.

However, for some countries in the region, where census data is already outdated because a considerable period of time has elapsed since the implementation of the last survey, Household Surveys and Demographic and Health Surveys, such as the one implemented in Nicaragua in 2011, would provide extremely useful statis-

tical information. Here, in the absence of census data, household surveys become more relevant as data sources in LAC countries. Since UNFPA's mandate focuses on reproductive health issues, health surveys are even more relevant as data sources for the production of the information needs in humanitarian crises.

It is worth noting that even when census and survey information exists at the national level, which provides relevant data, some results are outdated and may not be the primary source of data for different international humanitarian agencies and governments, based on local dynamics and requirements for the response to complex humanitarian emergencies. This is where other data sources should be sought, such as the potential updates provided by population projections.

2.2.5. Technological innovations that may facilitate data collection and analysis

The technological resources to collect and process socio-demographic and spatial information have considerably improved in recent years and increased the capacity to detect risk and humanitarian crisis in advance.

According to CELADE (2011b:85-106), part of the increasing demand for statistical information to be met with census results is associated with the possibilities provided by extraordinary technological advances that now enable the prompt generation of a mass of information that seemed impossible to compose a few decades ago.

Technological innovations that support the capturing of information include, among others:

- GPS (Global Positioning Systems).
- Aerial photographs, topographic maps, satellite imagery for spatial analysis; digital photos and other images; Google Earth, Quick Bird, ALOS, among others¹⁴.
- PDAs (Personal Digital Assistant), Tablets or Tablet computers and “netbooks”.

Technological innovations for information management include: Geographic Information Systems (GIS).

For recordkeeping and dissemination of census records LAC countries often use: REDATAM System + SP.

It should be noted that the systems mentioned above have been included for illustrative purposes only, and that a broad spectrum of specific systems for the storage and dissemination of census data are available, as well as systems for managing large databases and whose exhaustive listing far exceeds the purposes of this document.

¹⁴ Google Earth is a free software that allows users to browse satellite images from around the world and access millions of geographic data. Quick Bird: high resolution satellite owned and operated by Digital Globe. ALOS: low cost and high resolution Japanese satellite for non-commercial use (ECLAC, 2011b).

Finally and based on a general view, the following are available for the storage and dissemination of census records: SPSS and STATA.

2.2.5.1. PDAs, Tablets and Mobile Devices

According to CELADE (2011b:97-100), the technological innovations that are considered valuable to the tasks of information collection and analysis in humanitarian crisis situations include mobile computerized devices known as Personal Digital Assistants (PDAs), tablets or tablet computers, and notebooks.

These new devices allow for the introduction of several innovations into the data collection process, whose strengths and limitations are presented in Chart 12. They have changed the manner of capturing information, as well as where and how this task is performed. Nonetheless, they are expensive even now, which is one of the most significant limitations to their use as a major resource by LAC countries.

2.2.5.2. Geographic Information Systems (GIS)

Both the disasters associated with the occurrence of socio-natural hazards, as well as the forced displacement of people that develop during humanitarian crises are spatial facts that span varying territorial expanses, and may also include several administrative units (municipalities, provinces, departments or states).

Since the damage is not uniformly distributed among states, municipalities or smaller units, it is necessary to locate the vulnerable population wherever it is. The socio-economic characteristics and degree of development of each municipality influence the degree of the effects. Distinguishing these geographic differences leads to more precise and useful information for decision making. In fact, having geo-referenced information generated during the preparedness phase is very useful to provide an urgent response once the disaster occurs. It helps to guide decision making in terms of the suggested or indicated locations for the population to be relocated during the emergency.

Chart 12. Strengths and limitations of PDAs and mobile devices

| Strengths | Limitations |
|---|--|
| <p>Their use during an interview enables verification of the consistency of key questions such as age and sex, and there has been nothing like them in the data collection techniques used previously. Question sequence jumps and any consistency checks may be included in the programme. At the same time, the enumerator may be guided through the flow of questions and which questions to be asked (by jumping from one question to another), even if they do not follow the original sequence.</p> | <p>The cost of this type of technology in the commercial market is still high.</p> |
| <p>Maps of the enumeration areas may be generated by including Geographic Information Systems (GIS) in the device. These areas could be shown on the device screen to assist enumerators in positioning themselves better in the census areas.</p> | <p>Connectivity problems experienced by countries in the region when generating simultaneous connections for a high number of users, as they must all simultaneously transfer electronic files containing the information collected.</p> |
| <p>During the electronic transfer of files between the PDA used by the enumerator and a supervisor's laptop (and PDA), it is also possible to check data quality automatically and more accurately, by including a computer application developed for this purpose.</p> | <p>Adapting general-use software to polling activities requires having a considerable computer programming capacity that in many cases is not available at the national organizations producing statistical information.</p> |
| <p>The possibility of displaying warnings and messages on a supervisor's screen to enable immediate corrective measures during field operations has an undeniable value in enhancing the quality of the statistical data production. Timely corrective action may be taken, including the possibility of returning to households to clarify the responses provided. This would not be possible if errors are detected weeks after completing the field work.</p> | <p>Mobile devices require the selection of human resources to be based on specific characteristics, such as age, and particularly, good vision.</p> |
| <p>Speedy data delivery: Information is captured directly in digital format during the interview.</p> | <p>With regard to the enumerator training process, the use of mobile devices will generate the need for a different training in terms of the approach, planning, and development, as well as training the enumerator in the proper handling of the device.</p> |
| | <p>There are very frequent power outages during emergency situations that may interrupt the collection of information.</p> |

Source: CELADE (2011b: 97-100).

GIS are a powerful analysis tool because they enable the correlation of statistical data to physical geographic information. The resulting maps reveal linkages, trends, and patterns to contribute evidence.



For more information on the use of population and housing census information for disaster assessment, please refer to: Silva, A. y R.

Espina. (2010). *Información a microescala: Los censos de población y vivienda y su explotación para la evaluación de desastres*. Comisión Económica para América Latina y el Caribe, Seminario-Taller “Los censos 2010 y las condiciones de vida”.

Available online: http://www.eclac.cl/celade/noticias/paginas/1/39831/ASILVA_RESPINA.pdf

Chart 13 contains a summary of the major strengths and limitations of GIS.

2.2.5.3. REDATAM+SP System

In particular, population census information (and intercensal estimates), including information from LAC household surveys, may use a key tool for the dissemination of their results by generating a database on a REDATAM System within the CELADE-ECLAC Population Division. On the basis of information first developed during the 1980s, in addition to the potential of the census of having basic geographically disaggregated information on all people, households and housing in a country, CELADE sponsored a project to develop the REDATAM software, derived from the acronym from REtrieval of DATa for small Areas by Microcomputers. The purpose of the development of this software was to provide a user-friendly tool for easy use and access by all

Chart 13. Strengths and limitations of Geographic Information Systems

| Strengths | Limitations |
|--|--|
| They provide valuable information on population location, as well as on the vital social infrastructures: health centres, schools, churches, community centres, markets and roads necessary to organize humanitarian assistance. | The integration of a database on GIS takes time, funding, skilled staff, and the supply of material resources. |
| This technology improves the production of detailed maps on specific areas that are potentially affected, which facilitates decision making by allowing a spatial visualization for a more effective humanitarian response. | Quality information is needed to feed databases, otherwise decision making based on these results may be counterproductive. |
| There has been a reduction in the cost of GIS updating and improvement. In the long term, considerable time and resources are saved. | Over time it is necessary to periodically update the software and hardware used in order to efficiently maintain the databases. This also requires permanent training of the staff involved, which not all the organizations can afford or do not consider a priority. |
| Databases in a GIS environment are useful, both for planning as well as during emergencies. | Staff turnover creates setbacks in the maintenance and monitoring of databases. |
| | The purchase of versions that are not original or are variations that do not meet the technical requirements can affect the maintenance work on databases. |

Source: UNFPA (2010:21-22).

researchers and decision makers in matters of public policies and population.

Similarly, it is recommended that this statistical processing be attached to a GIS to conduct simultaneous spatial analyses of the potential damages and characteristics of the exposed populations.

In general, the LAC NSIs have their population census information (and intercensal estimates), as well as information from their household surveys conducted with this key tool, to proceed with the dissemination of their census results and surveys. Similarly, the CELADE-ECLAC Population Division provides permanent assistance to national organizations in the region to generate and maintain a database on the REDATAM system¹⁵.



Please refer to www.eclac.cl/redatam/ for the databases and processing information. There are documents and manuals that may be used by country offices.

For more information on the REDATAM System, please refer to the CELADE-Population Division of ECLAC on the web: <http://www.cepal.org/redatam/>.

2.2.5.4. SPSS

SPSS was created over 40 years ago, around 1968. It is an example of a statistical computer programme commonly used in the social sciences. Its original name is the acronym for Statistical Package for the Social Sciences.

2.2.5.5. STATA

Another statistical software package typically used by academic institutions dedicated to sociological and economic research, among oth-

ers, was created around 1985. Its name comes from combining the words Statistics (statistics) and data (data). It allows for, among other features, data management, statistical analysis, graphing and **simulations***.

2.3. Operational Aspects

Preparedness is a crucial phase. The main objective is to integrate a culture of prevention to address humanitarian crises. It is important to mainstream and integrate the essential and recommended information. The country has data sources, and required information requires significant coordination efforts. The aim is to achieve an appropriate information management system, with guaranteed access to be used in the event of a disaster. This stresses the relevance of the prevention approach of preparedness.

What are the indispensable activities?

To prepare a Contingency Plan for the purpose of:

- Preparing and strengthening the national capacity of the crisis team.
- Contributing to the estimation of vulnerable populations and potential damages by building an Early Warning System.
- Define a response plan for a humanitarian crisis.

How can we implement these activities?

- By organizing and coordinating tasks between public agencies and private organizations, NGOs and the various national and international humanitarian actors.
- These articulation and coordination activities are closely linked to the specific context and needs of the countries in the region. Each LAC country has Humanitarian Network Protocols, which include basic procedures for defining and updating the population risk scenarios, by geographical area; sharing tools for information management and communication, creating integrated databases consolidated for national and local levels; organizing and coordinating human, physical and material re-

¹⁵ To access the list of countries that disseminate the results of their censuses and surveys through System REDATAM, please, visit CELADE-Population Division of ECLAC website: http://www.cepal.org/cgi-bin/getProd.asp?xml=/redatam/agrupadores_xml/aes213.xml&xsl=/redatam/tpl/agrupa_redatam.xsl&base=/redatam/tpl/top-bottom.xsl.

sources of the various institutions; articulating and coordinating institutional response plans to humanitarian crises.

- Meanwhile, these Guidelines seek to strengthen national processes in LAC related to the collection and analysis of socio-demographic data for use in humanitarian crisis and therefore provide methodological suggestions to contribute to the respective country protocols.
- Consequently, it is recommended that, at this stage of prevention, each country in the region conducts an initial review of its existing protocols, in order to reinforce the idea of the key role of data collection and analysis during this preparedness phase.

2.3.1. Contingency Plan

A Contingency Plan may never be activated. However, if the anticipated event does occur, the plan will provide valuable elements for a timely and effective response. This preparedness process will surely save more lives...
(COOPI, 2007:4)

The Contingency Plan:

- It is the main activity in the preparedness phase.
- It is a comprehensive planning tool for the purpose of anticipating any probable crisis situations. It is prepared with the participation most public agencies as shown in Chart 4, as well as private organizations, NGOs, and the community. Its aim is to establish a coordinated response to potential humanitarian crisis situations.

In order to prepare the Contingency Plan, an analysis is required based on three elements:

- Data collection and analysis, in order to build a risk scenario.
- Technical accuracy.
- Inter-agency coordination.

Data collection and analysis, in order to build a risk scenario

The activity refers to the initial task of data collection and analysis on natural hazards (natural and/or of any other type present in the area under analysis), as well as on population vulner-

ability including population size, distribution and characteristics in the area and surroundings. This activity starts with a zoning or mapping of the hazards, by type, and the estimation of the number of potentially affected people, their location, socio-economic and demographic characteristics, behaviour patterns and livelihoods, as systematized in Diagram 1 indicators. Examples 6 and 7 (see pp. 62 and 64) provide a practical example of the implementation of this initial activity by UNFPA-Bolivia.

The objective is to generate an updated database on the population at risk, using the most recent socio-demographic information available. To this end, it is essential to initially select the data sources from which population estimates will be prepared, including an analysis of the quality, strengths and weaknesses of each data source in the country.

The construction of these risk scenarios is a key task in preparing Contingency Plans. A scenario involves analysing a risk situation on the basis of the information available at that time. It describes the type of damage and loss that could result from the occurrence of a wide range of natural hazards given a set of conditions and behaviours. It therefore takes into account the behaviour of the underlying factors of risk: the hazard and the vulnerability of the population.

The inputs to build a risk scenario are:

- **The hazard:** A description of the natural hazard is required (national, endogenous, etc.), as well as the coverage, the probable intensity (starting with confirmed past intensities), and the probable frequency of occurrence (recurrence period). It must also consider that multiple natural hazards may arise in some contexts: on the one hand a natural hazard (floods and heavy rain), and on the other hand, another type of natural hazard that may be more related to pre-existing conditions (landslides caused by rainfall, but also due to the location and quality of the housing on mountain slopes).
- **Vulnerability:** The characteristics of the population exposed to the hazard in question. Population numbers and distribution, their structure by sex and age, population groups (children, ado-

lescents and youth, seniors, individuals with some disability or chronic disease, etc.) socio-economic situation, health conditions, education, are analysed. The importance of having the largest amount of disaggregated data from a geographic viewpoint must be reiterated in this case, for the purpose of transferring this information to a GIS.

- **Estimation of probable damages:** The expected damages and the most affected sectors and groups are specified, and the probable degree is estimated.

The scenario should be explained, preferably, in two ways:

- In writing, by means of a brief and precise report, with information as shown in Examples 7 and 8 (see pp. 64 and 65), and it may include graphics and charts.
- Represented spatially, for example, on a map identifying critical areas, at-risk infrastructures and population, as shown in Example 9 (see p. 66).

In this case, the use of the GIS are highly recommended as they are powerful tools of analysis to correlate statistical data with physical geographic information. The resulting maps will reveal linkages, trends, and patterns, and will contribute evidence regarding potential natural hazards and vulnerable populations. This represents a great aggregated value because it will direct the formulation of a Contingency Plan.

This task requires the interpretation and graphic/spatial representation of data so that it may be accessed by diverse publics, starting with the decision makers and particularly the potentially affected communities.

The development of this action will help to development response priorities, and in the event a humanitarian crisis situation, improve the efficiency of the available resources (Silva y Espina, 2010).

Technical accuracy

With respect to technical accuracy, in order to decide which data source to use when collecting and analysing the required information, it is rec-

ommended to bear in mind the international criteria for statistical quality: data pertinence, exhaustiveness, accuracy, comparability, coherence, opportunity, timeliness, clarity, and accessibility.

Inter-agency coordination

With regard to inter-agency coordination, this technical work is performed by thematic specialists and/or trained government agency personnel, as in the case of the National Statistics Institutes and sectoral organizations in each country, or by research centres (see Chart 4).

Due to the characteristic dispersion of the information produced by these agencies in the LAC region, the assessment of existing Humanitarian Network Protocols in countries and their implementation should provide solutions to this challenge.

In this case, it is advisable that the respective country protocols include particular specifications related to:

- What data is collected and analysed, including the respective level of geographical disaggregation.
- Who –what organization/institution– will produce them.
- When.
- How they will be updated.

Also, countries are encouraged to include a function of inter-governmental coordination in their protocols, that allow for coordination of activities between national and international stakeholders (including the United Nations, and their respective local partner in the public sector) to perform the required actions, so that all information producers report and feed the same system.

A critical aspect is the amount of time required for the standardization of indicator formats for their inclusion in databases and particularly the timeliness of the reports.

In order to develop a Contingency Plan, it is recommended to follow the stages shown in Diagram 2.

Diagram 2. Basic stages for the development of a Contingency Plan and related activities

| Steps | Actions | Information required and related activities | For more information see |
|-----------------------|--|---|---|
| 1. Preparedness. | <ul style="list-style-type: none"> • Prepare and organize sectoral and inter-agency coordination and collect the information that will serve as the basis for assessment and monitoring. | <ul style="list-style-type: none"> • Establish a disaggregated database. • Geo-referenced data on hazards, housing, demographics, health, socio-economic conditions and infrastructure services and resources are needed. • Population, household, and housing censuses may be used, as well as intercensal estimates, population projections, household surveys, and administrative records. | <ul style="list-style-type: none"> • Diagram 1: indicators selected by UNFPA-Bolivia in Examples 6 and 7; and integration of census indicators in Haiti-2009 in Example 8. |
| 2. Analysis. | <ul style="list-style-type: none"> • Analyse the natural hazards and vulnerabilities to estimate the degree of risk per territorial unit. • Risk scenarios are developed. | <ul style="list-style-type: none"> • The information collected during the preparedness and mapping stage is analysed and the zones exposed to natural hazards and their features identified; as well as the location and profile of the at-risk population, their demographic and health characteristics; the gender-based analysis of the vulnerable population; and the identification of population groups. The use of geo-referenced information (Geographic Information Systems, GIS) is indispensable. • Map the capacities available in the affected area; make a rapid needs assessment; make a projection of the population that is likely to be affected. | <ul style="list-style-type: none"> • Indicators suggested in Diagram 1 and possibilities provided by information mapping in Example 9. |
| 3. Response planning. | <ul style="list-style-type: none"> • Define objectives and strategies to generate the response. • Define management and coordination methods. • Develop and consolidate response plans. | <ul style="list-style-type: none"> • Define who will do what, when, and how. • Design a M&E Plan. • Design a warning and communication system targeted at the public. | <ul style="list-style-type: none"> • Example 10: Implementation of an EWS in the state of Vargas, Venezuela. |
| 4. Implementation. | <ul style="list-style-type: none"> • Initiate the plan and continuous improvement of preparedness. | <ul style="list-style-type: none"> • Review early warning indicators. • Perform rapid needs assessment; assess safety; train key stakeholders in rapid needs assessment techniques; carry out drills; use the results of the needs assessment to review/validate the assumptions of the Contingency Plan. | <ul style="list-style-type: none"> • Drill activities in the handbook for the implementation of the <i>Guidelines</i>. |

Source: Based on UNFPA (2010:19, Table 3).

3.3.2. Early Warning System (EWS)

An Early Warning System (EWS) is a procedure to warn a vulnerable population with sufficient time, about the development of a potential natural hazard (Bravo et al., 2010).

An EWS is applied to a given territory where a community or population exposed to the effects of specific natural hazards (flooding, tropical cyclones, tsunamis, landslides, etc.) resides.

The system consists of four subsystems, with specific features and purposes:

- Measurement and monitoring of hazards.
- Knowledge of risks.
- Preparedness and responsiveness.
- Dissemination and communication.

Although EWSs may or not be part of a Contingency Plan, the former must engage the community at risk (community leaders, male and female heads of households, women, teachers, physicians from the health centres in the target areas, etc.), and institutional stakeholders and representatives of national and local government agencies, such as those included in Chart 4.

In particular, the required level of information disaggregation has to be established. It is essential to have local level information. In general,

the local level is one of the priority areas for decision making in a humanitarian crisis situation. For this reason, it is imperative to ensure that selected indicators are suitable for that level of disaggregation.

Moreover, because of the context in which a humanitarian crisis may develop, it is necessary to provide for the dissemination and communication of the early warning information to the general public (local and/or national government press release, etc.), as well as to the people affected by the disaster.

In this sense, these Guidelines aim to strengthen national processes in LAC relating to the collection and analysis of socio-demographic data for use in the development of an EWS and, therefore, provide methodological suggestions to be taken into account in the development or update the respective country Systems.

Consequently, it is recommended that, at this prevention stage, each country in the region initially conduct a review of its existing EWS, in order to reinforce the idea of the key role of data collection and analysis during the preparedness phase.

In this case, Example 10 (see p. 67) contributes ideas with regard to the lessons learned from the implementation of an EWS in the state of Vargas, Venezuela.



For further information about an Early Warning System (EWS) currently in place, please refer to:

The World Food Programme's

Early Warning System (EWS) for Central America SATCA website:

<http://www.satcaweb.org/alertatemprana/inicio/satcaweb.aspx>.

Its basic purpose is to strengthen the capacity to anticipate potential natural hazards in Central America to improve the preparedness, mitigation, and humanitarian response. To this end, SATCA strengthens Early Warning Systems in Central America through a regional web platform dedicated to the monitoring of potential natural hazards.

Summary of the main aspects to be considered:

- The relevance of the community as a primary subject of law.
- The goal of integrating the necessary information in a consolidated and harmonized database.
- The importance of information for the local level of decision-making.
- The need to be prepared by generating a geo-referenced statistical data system to provide urgent emergency response.
- The relevance of the means of dissemination and communication to the highest authorities in charge of making decisions regarding the response, the affected population and the general population.

2.3.3. How to ensure continuity of and monitoring to the activities of preparedness phase?

The evaluation and monitoring of all the required activities involves a set of essential tasks during the preparedness phase. What matters in this phase is to supervise, not only the systematization and **harmonization*** of the information to be collected and analysed, but particularly how data must be updated in the following phases, in particular, the chronic and post-crisis phases.

Regarding the possibilities of updating the information, it will depend on the periodicity assigned by each organization responsible for producing the data, based on the source in question. In this case, Chart 11 shows several periods in which it would be possible to update the hazard and socio-demographic information.

The information generated by the administrative records such as vital statistics –births and

deaths–, school enrolment and others, may be updated on a yearly basis:

- Survey information may be updated annually if there are continuous or timely surveys conducted during given months of the year, such as job market, employment and unemployment surveys. However, the information from specific sampling surveys, such those on sexual and reproductive health or nutrition, could be updated only to the extent they continue to be implemented in the country.
- Finally, census information could be updated every 10 years, or every 5 years in the case of the results of intercensal estimates.
- Population projections/estimates drawn from a census-based population, depend on the periodicity of the survey. Meanwhile, projection updates will more like be based on symptomatic variables (Chart 14).

Chart 14 presents a synthesis of the possible reference dates for updating information on hazards and vulnerability.

Chart 14. Proposed timeframe for updating the information to be used in humanitarian risk situations in LAC, by data source

| Data source | Time to update the information |
|--|--|
| <ul style="list-style-type: none"> • Spatial analysis (aerial photographs, topographic maps, satellite images). | <ul style="list-style-type: none"> • Ongoing. |
| <ul style="list-style-type: none"> • Information on natural hazards. | <ul style="list-style-type: none"> • Ongoing. |
| <ul style="list-style-type: none"> • Population, household, and housing censuses. | <ul style="list-style-type: none"> • Every 10 years (in countries with decennial censuses). |
| <ul style="list-style-type: none"> • Inter-census counts. | <ul style="list-style-type: none"> • Every 5 years (in countries with population counts). |
| <ul style="list-style-type: none"> • Population projections. | <ul style="list-style-type: none"> • Every 10 years (in countries with decennial censuses). • Every 5 years (in countries with population counts). • At any time: for projections based on symptomatic variables. |
| <ul style="list-style-type: none"> • Vital Statistics. • Hospital Statistics. • Resource Statistics. | <ul style="list-style-type: none"> • Every year. |
| <ul style="list-style-type: none"> • Statistics of health/school establishments, buildings, facilities and infrastructure. • School enrolment figures. | <ul style="list-style-type: none"> • Every year. |

Source: UNFPA (2012).

Regarding the monitoring of the preparation of the Contingency Plan and the planning of an emergency response, it is recommended to ensure that:

- Both humanitarian actors, as well as the target population, are part of the planning process.
- Scenarios cover the widest range of potential hazards with adequate monitoring mechanisms in the referenced region, and easily identifiable indicators, using reliable information sources.
- Vulnerability analyses are performed and response options provided.
- Adequate response simulations or drills are conducted, including training for the purpose of permanently updating national capacities of response teams.

2.4. Lessons Learned by Latin American and Caribbean Countries on Data Collection and Analysis during the Preparedness Phase

Examples 6 through 10 below present various examples of the actions conducted by some countries in the region, such as Bolivia, Haiti, Argentina and Venezuela, respectively, to collect and analyse information that may contribute to effectively assist populations affected by humanitarian crises.

Example 6 shows a set of indicators selected by UNFPA-Bolivia at a municipal level, entered on an Excel spreadsheet for the purpose of preparing a risk scenario. In this case, the work consisted of selecting the basic indicators that enabled a calculation with data from sources available in the country that had good coverage and quality, and contributed to detecting populations potentially vulnerable to hazards, as well as the design of the proposed response to an eventual humanitarian crisis.

Example 7, in turn, also presents the same experience as UNFPA-Bolivia, this time as the result of the processing of the data entered on the Excel spreadsheet mentioned above. In this case, this example shows the possibility of having a fact sheet at the municipal level that includes



the main basic indicators generated for each municipality in particular by processing of the spreadsheet in Example 6. It must be noted that both spreadsheets, as well as municipal fact sheets, are being used in the target country along with other actions to prepare cost and funding resource projections needed to plan humanitarian response actions according to the needs of the population.

Example 8 presents a summary chart of the main indicators prepared by UNFPA-Haiti around 2009. They come from a global matrix that clearly indicates the importance of having data prior to a disaster. The matrix used in Haiti was of great assistance during the earthquake of January 12, 2010. In particular, it disaggregates three groups of youths and adolescents for the purpose of breaking down priority country data into vulnerable population groups.

Example 9 shows, as mentioned above, the actions conducted to integrate the joint work of various national organizations in Argentina with the object of integrating information on hazards and socio-demographic data that may contribute to the formulation of an EW. Moreover, the example shows the possibilities that arise when processing the information with a GIS.

Finally, Example 10 contributes elements to understand the activities carried out, who was responsible for their implementation, and how they did it, in order to implement an EWS in the state of Vargas, Venezuela.

Example 6. Selection of municipal indicators developed by UNFPA-Bolivia, 2011

| Department | Province | Municipality | Infant mortality rate | People x room | Percentage of homes with water for drinking, cooking and plumbing | Percentage of homes with electricity | Flooding | Drought | Fire | Freeze | Landslide |
|------------|---------------------|--------------------------|-----------------------|---------------|---|--------------------------------------|----------|-----------|--------|-----------|-----------|
| LA PAZ | Bautista Saavedra | (Charazani) | 90.53 | 1.92 | 68.33 | 10.78 | Low | High | Medium | Low | Medium |
| COCHABAMBA | Ayopaya | (Villa de Independencia) | 106.18 | 2.34 | 33.17 | 16.15 | Medium | Very High | Low | Medium | Very High |
| POTOSÍ | Bernardino Bilbao | Acasio | 122.34 | 2.12 | 68.00 | 3.11 | Low | High | Low | Low | High |
| LA PAZ | Omasuyos | Achacachi | 75.88 | 1.84 | 49.62 | 47.00 | Medium | Very High | Low | Very High | Low |
| LA PAZ | Pedro Domingo Murri | Achocalla | 67.22 | 2.06 | 43.12 | 66.15 | Low | Low | Low | Low | Low |
| COCHABAMBA | Narciso Campero | Aiquile | 85.87 | 2.14 | 57.94 | 29.99 | Low | High | Low | Low | High |
| COCHABAMBA | Mizque | Alalay | 91.15 | 2.84 | 46.25 | 7.88 | Low | High | Low | Low | High |
| LA PAZ | Omasuyos | Ancoraimes | 70.58 | 1.96 | 52.77 | 27.05 | Low | High | Low | High | Medium |
| ORURO | Poopó | Antequera | 107.16 | 2.04 | 48.38 | 52.16 | Low | Medium | Low | Medium | Medium |
| COCHABAMBA | Esteban Arce | Anzaldo | 109.87 | 1.66 | 48.04 | 15.25 | Medium | Very High | Low | Medium | Medium |
| LA PAZ | Franz Tamayo | Apolo | 50.12 | 3.38 | 25.4 | 2.05 | Medium | Very High | High | Low | Medium |
| POTOSÍ | Bernardino Bilbao | Arampampa | 103.28 | 2.10 | 54.34 | 1.52 | Low | High | Low | Low | High |
| COCHABAMBA | Arani | Arani | 93.75 | 1.57 | 61.70 | 66.83 | Low | Medium | Low | Low | Low |
| COCHABAMBA | Esteban Arce | Arbieto | 70.51 | 1.39 | 65.88 | 81.99 | Low | Low | Low | Low | Low |
| COCHABAMBA | Arque | Arque | 122.25 | 2.20 | 26.27 | 92.84 | Medium | Very High | Low | Very High | Very High |

Example 6. Selection of municipal indicators developed by UNFPA-Bolivia, 2011 *(continued)*

Please note that Example 6 presents only a selection of the list of indicators prepared by UNFPA-Bolivia. The general list of indicators generated by Department-Province-Municipality is as follows:

1. Total population.
2. Men.
3. Women.
4. Percentage of non-poor.
5. Total non-poor.
6. Percentage of population with satisfied UBN.
7. Total population with satisfied UBN.
8. Percentage of population below poverty threshold.
9. Total population below poverty.
10. Percentage of population in moderate poverty.
11. Total population below moderate poverty threshold.
12. Percentage of population living in extreme poverty.
13. Total population below extreme poverty threshold.
14. Percentage of population in marginal poverty.
15. Total population below marginal poverty threshold.
16. Human Development Index (HDI) (2005).
17. Municipal Ranking (2005).
18. Total Language I.
19. Percentage Language I.
20. Total Language II.
21. Percentage Language II.
22. Total Language III.
23. Percentage Language III.
24. Total Language IV.
25. Percentage Language IV.
26. Number of educational facilities.
27. Health staff per 1,000 inhabitants.
28. Number of beds per 1,000 inhabitants.
29. Total number of health facilities.
30. Health facilities - First Level.
31. Health facilities - Second Level.
32. Health facilities - Third Level.
33. Health facilities - Fourth Level.
34. Percentage of institutional delivery coverage.
35. Average prenatal visits per pregnant patient.
36. Infant mortality rate.
37. Individuals per room.
38. Percentage of households with piped water for drinking and cooking.
39. Percentage of households with electricity coverage.
40. Multi-hazard (very high, high, medium, low).
41. Vulnerability (very high, high, medium, low).
42. Flood (very high, high, medium, low).
43. Drought (very high, high, medium, low).
44. Fire (very high, high, medium, low).
45. Frost (very high, high, medium, low).
46. Landslide (very high, high, medium, low).

Source: Information provided by UNFPA-Bolivia, 2011.



Example 7. Disaster Risk Municipal Fact Sheet, UNFPA-Bolivia, 2011

MUNICIPAL SHEET OF DISASTER RISKS

I. GENERAL INFORMATION

| | | | | | |
|-------------------|--------|-----------------|-----------------------|---------------------|-----------|
| Department | La Paz | Province | Pedro Domingo Murillo | Municipality | Achocalla |
|-------------------|--------|-----------------|-----------------------|---------------------|-----------|

II. POPULATION, POVERTY AND HUMAN DEVELOPMENT

| Men 2011 | Women 2011 | Total population 2011 |
|----------|------------|-----------------------|
| 8,308 | 8,413 | 16,721 |

| IDH x Municipality (2005) | Municipal ranking (2005) |
|---------------------------|--------------------------|
| 0.63 | 82.00 |

| Non-poor population | |
|-----------------------------------|-------------------------------------|
| % of population with BN satisfied | % of population below poverty level |
| 1.49 | 98.51 |

| Poor population | | |
|-------------------------------------|-----------------------------------|-------------------------------------|
| % of population in moderate poverty | % of population living in poverty | % of population in marginal poverty |
| 36.45 | 61.40 | 2.15 |

1.2 LANGUAGE, N° OF EDUCATIONAL FACILITIES AND BASIC SERVICES (2001 CENSUS)

| Language I | % Language I | Language II | % Language II | Language III | % Language III | Language IV | % Language IV |
|------------|--------------|-------------|---------------|--------------|----------------|-------------|---------------|
| Aymara | 55.27 | Español | 43.46 | Quechua | 0.95 | Extranjero | 0.15 |

| Number of educational facilities |
|----------------------------------|
| 30 |

| People x room | % of homes with water for drinking, cooking and plumbing | % of homes with electricity |
|---------------|--|-----------------------------|
| 2.06 | 43.12 | 66.15 |

III. INDICATORS OF HEALTH AND SERVICE COVERAGE

| Coverage of institutional delivery % |
|--------------------------------------|
| 6.06 |

| Average pre natal consultations x pregnancy attended |
|--|
| 2.46 |

| Infant mortality rate |
|-----------------------|
| 67.28 |

| Health personnel x 1000 inhabitants | Number of beds x 1000 inhabitants | Total number of health facilities | Primary-level health facilities | Second-level health facilities | Third-level health facilities | Fourth-level health facilities |
|-------------------------------------|-----------------------------------|-----------------------------------|---------------------------------|--------------------------------|-------------------------------|--------------------------------|
| 0.06 | 0.00 | 3.00 | 3.00 | 0.00 | 0.00 | 0.00 |

IV. RATE OF RISKS (2009)

| Multi-hazard | Vulnerability | Flooding | Drought | Fire | Freeze | Landslide |
|--------------|---------------|----------|---------|------|--------|-----------|
| Medium | Low | Low | Low | Low | Low | Low |

Source: Information provided by UNFPA-Haiti, 2011.

Example 8. Integration of indicators based on census source: HAITI 2009

| Required Information | Indicators | Value | Period/ year | Source |
|--|--|-----------|--------------|--|
| Population size and spatial distribution by administrative unit and locality. | Number of people | 9,923,243 | 2009 | Population projections |
| | Population density | 358 | 2009 | Population projections |
| | Urban population | 4,740,950 | 2009 | Population projections |
| | Rural population | 5,182,293 | 2009 | Population projections |
| | Average household size | 4.6 | 2006 | DHS |
| | Number of households | 2,157,227 | 2009 | Population projections |
| Structure by age and sex Identification of population groups. | Ratio of men | 98% | 2009 | Population projections |
| | Ratio of women of reproductive age | 26.0% | 2009 | Population projections |
| | Ratio of youth and adolescents: | | | |
| | • 10-14, 15-19 | 11.6% | 2009 | Population projections |
| | • 20-24 | 10.9% | 2009 | Population projections |
| | Ratio of elderly (65 and older) | 10.2% | 2009 | Population projections |
| | Ratio of people with disabilities | 4.3% | 2009 | Population projections |
| | Dependency ratio | 1.5% | 2003 | Census |
| | Ratio of female-headed households | 68.4% | 2009 | Population projections |
| Ratio of child-headed households | 43.7% | 2006 | DHS | |
| Socio-economic characteristics of the population in the potentially affected area. | Literacy rate | 61.0% | 2003 | Census |
| | Distribution by economic activity sectors: | | | |
| | • Primary | 24% | 2007/2008 | Institute of Statistics (IHSI), Economic Reports |
| | • Secondary | 16% | 2007/2008 | |
| • Tertiary | 60% | 2007/2008 | | |

Source: Information provided by UNFPA-Haiti, 2011.

Example 9. Group of Primary Information Providers (GPIP), Argentina

Origins: Established upon the signing of the “Inter-Institutional Agreement of Technical Cooperation and Assistance”, on October 24, 2006, in order to contribute to a comprehensive risk management system by integrating information of a multi-term, multi-scale, multi-spatial, multi-discipline, multi-institutional, multi-criteria, multi-purpose, and permanent nature for an early warning and risk management.

Members: National Geographic Institute (Instituto Geografico Nacional, IGN), the Secretariat for the Public Management of the Office of the Chief of the Cabinet of Ministers, National Commission on Spatial Activities (CONAE), the National Water Institute (INA), the National Meteorological Service (SMN), the Argentinian Geological Mining Service (SEGEMAR), the National Institute of Seismic Prevention (INPRES), the Environmental Management and Ecology System (GISEA) the National Institute of Agricultural and Farming Technology (INTA), the National Institute of Statistics and Census (INDEC).

Technology: Uses neutral technology with templates based on the XML standard format (Extensible Markup Language) allowing systems with a diversity of architectures and various software to exchange data and services beyond their own structures and manner of operation.

Methodology:

- **Messaging stage:** News is reported to the centralized system with messages in standardized formats that may or not be geo-referenced.
- **Data exchange stage:** The GPIP system allows information to be accessed, thereby ensuring the inter-operability (information may be exchanged between various systems; it may be processed, changed, integrated with other types of information; it may be integrated with other types of information; it may be provided by various providers; there is a reverse compatibility; it is expandable and consistent; and applications may be developed quickly).

Forecasting Model and Implementation Stage:

Scope: Warning about floods, low water levels, mass movements, volcanic eruptions, earthquakes, snow, severe storms, hot spots, heat waves, cold waves.

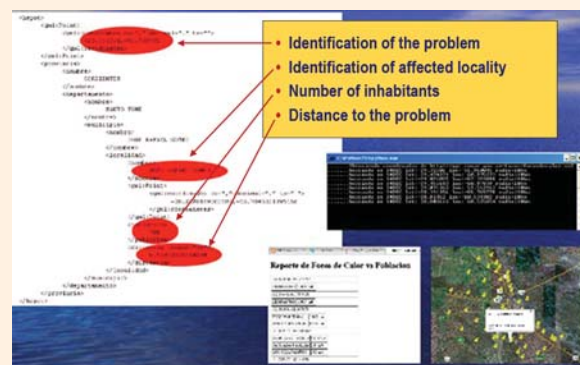
Types of warnings:

- **Yellow:** an event that does not pose a threat; but may become one should conditions evolve unfavourably.
- **Red:** an adverse event that poses a serious threat against a specific population or certain vital resources of the country, although it does not imply that a definite damage has been caused.

Information:

- Location of the problem.
- Identification of the affected locality.
- Number of inhabitants.
- Distance to the problem.

Example of the activity performed within the GPIP-Argentina framework



Source: GPIP-CONICET-UCDI (2012).

Example 10. Implementation of an Early Warning System: The case of the EWS in the state of Vargas, Venezuela

Heavy rains on the central Venezuelan coast in December 1999 caused torrential flows and floods that practically affected the entire population located along the Caribbean coast. It was a disaster of large proportions. As this experience may repeat itself, it demonstrated a need for the implementation of an Early Warning System in the zone. It began with the initiative of a group of professors of the Simon Bolivar University in Caracas. A system consisting of 4 subsystems was organized, based on the guidelines of Maskrey *et al.* (1997):

1. Measurement and monitoring of hazards

| What? | Who? | How? |
|---|---|--|
| <ul style="list-style-type: none"> • Ongoing monitoring of weather conditions. • Manufacturing community rain gauges. | <ul style="list-style-type: none"> • Camuri Grande-USB: Central Monitoring Station. • Watershed sector leaders. • National Weather Institute (INAMEH). • Caribbean Maritime University. | <ul style="list-style-type: none"> • Automatic rain volume and river level estimates. • Community rain gauges. |

2. Knowledge of risks

| What? | Who? | How? |
|--|---|--|
| <ul style="list-style-type: none"> • Identification of natural hazards. • Mapping of hazards and vulnerabilities. • Design of risk scenarios. | <ul style="list-style-type: none"> • Technical team of experts from participating universities. • Organized community of Camuri Grande. | <ul style="list-style-type: none"> • By determining the type of hazard, identifying vulnerabilities in watersheds, and assessing risks. |

3. Preparedness and responsiveness

| What? | Who? | How? |
|--|--|---|
| <ul style="list-style-type: none"> • Training communities. • Formulating preparedness and response plans. • Assessing and strengthening community response capacities. • Conducting simulation drills. | <ul style="list-style-type: none"> • USB (A risk management group, a project to establish community services). • Watershed sector leaders. • Firemen. • National Weather Institute (INAMEH). | <ul style="list-style-type: none"> • By coordinating institutions and community leaders. |

4. Dissemination and communication

| What? | Who? | How? |
|---|--|---|
| <ul style="list-style-type: none"> • Establishing effective communication teams. • A coherent dissemination of information. • Defining communication protocols to activate alarms. | <ul style="list-style-type: none"> • National Weather Institute (INAMEH). • USB Central Monitoring Station-Camuri Grande. • Vargas Civil Protection. • Watershed sector leaders. | <ul style="list-style-type: none"> • By receiving data through the telemetric system between institutions. • With the community, through radios, landline and cellular telephones, sirens, etc. |

Source: Bravo De Guenni, L., et ál. (2010). *Desarrollo de un Sistema de Alerta Temprana Comunitario en el estado Vargas, Venezuela*.



Data Collection and Analysis during Acute Phase

...the best decisions are made when the information is quickly accessible, easily understandable and reliable.

(REDLAC, 2011)

3.1. Overview

- Corresponds to the moment that a crisis situation unlashes. It is usually characterized by massive destruction of housing and vital infrastructure, the interruption of economic activities, the loss of human lives and the temporary or definite displacement of individuals, families and communities. This is the moment when the population is not equipped to meet its own basic needs and requires the most assistance:
- Its duration may fluctuate from day-to-day and even from month to month.
- If there is a Contingency Plan, it is activated during the preparedness phase.
- If there is no Contingency Plan, it needs to be produced as quickly as possible.
- First emergency interventions are conducted.
- Devices are installed to monitor and assess interventions.

- **If the Contingency Plan has already been designed during the preparedness phase:** It will allow implementation of the set of basic procedures and response actions that have been established in advance in order to face a humanitarian crisis situation in a timely, adequate, and effective manner. A prepared Contingency Plan contributes to an initial identification of the affected groups and their specific needs, for the purpose of ensuring the effectiveness of **humanitarian actions***.
- **If no Contingency Plan has been developed during the preparedness phase:** A multi-sectoral initial rapid assessment (MIRA) is required to address the consequences of the disaster.

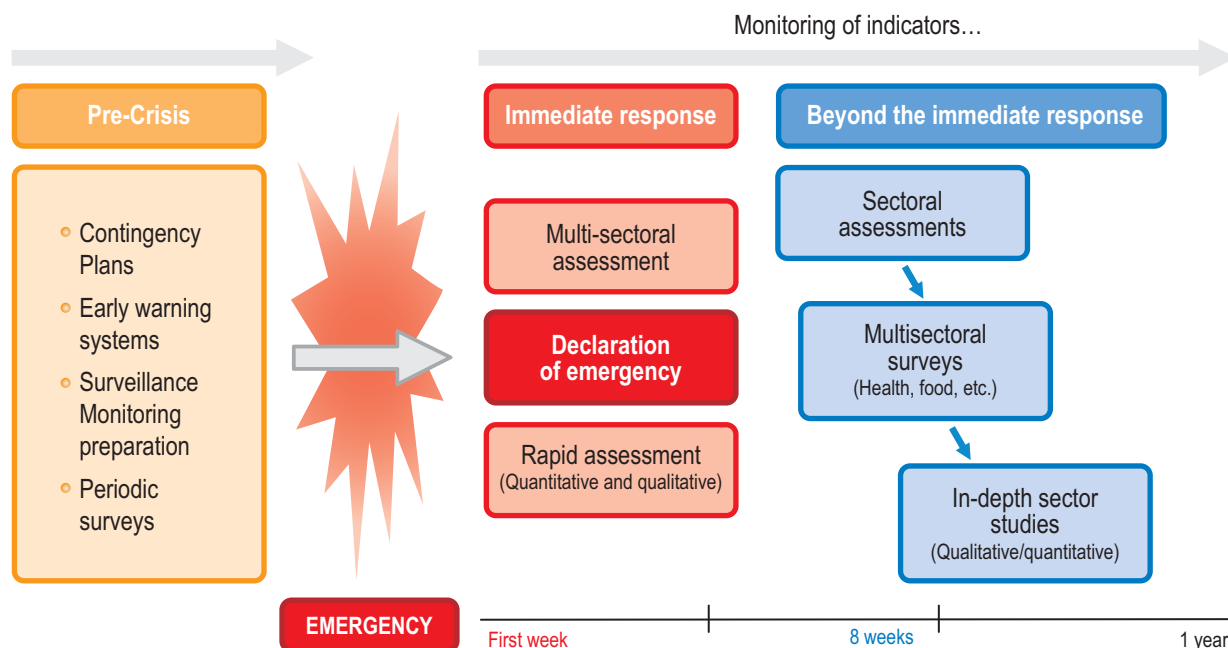
3.2. Collection and Analysis of Relevant Information for Acute Phase

The initial data required during the acute phase is the same as that of the preparedness phase. We need to be prepared to respond during the acute phase. The difference is that, unlike the preparedness phase, the exact area affected by the disaster is known. Our initial response will be



For more information on this section, please refer to: *Handbook for the implementation of the Guidelines (Training Workshops by phase)*.

Figure 5. Initial rapid assessment and monitoring process in acute phase



Source: UNFPA (2010).

based on data collected and analysed during the preparedness phase. It would then be necessary to obtain additional information to guide and clarify the humanitarian aid required by the affected community.

However, there is no time during the acute phase to devote to the design of a secondary database or create new measurement tools, whether quantitative or qualitative, in the short term (see Figure 5). These should all be ready beforehand (pre-defined socio-demographic indicators, questionnaires for key informant interviews and/or focus groups, among others) so that they may be rapidly adapted to the context of the emergency.

For this reason, countries in the region are advised to review the Humanitarian Network Protocols at their disposal in advance to complement these forecasts, taking into account the selected socio-demographic indicators in Diagram 4 (see p. 73), as well as proposals for suggested questions to apply to key informant interviews and focus groups, included in Annex II and III of the “Operational Tools”.

3.2.1. What methodologies and data sources need to be taken into account?

Given the urgency with which the necessary information is required, the technique suggested to collect data is a Multi Cluster/Sector Initial Rapid Assessment Approach (MIRA). There are also various methods of rapid data collection that can provide the pertinent elements to focus assistance actions required during the acute phase of humanitarian crises.

MIRA is a multi-sector assessment conducted by key stakeholder during the first two weeks following a sudden disaster. Its objective is to provide basic information on the needs of the affected population, and the priorities for international aid. MIRA allows all stakeholders to establish a common understanding of the situation and its probable evolution from the outset, and to agree upon immediate strategies (NAFT, 2012:3).

MIRA is organized around three fundamental components:

- A review of secondary data.

- An assessment of the community level, with qualitative and quantitative methods.
- An analytical framework or report, to be prepared as input.

It should be clarified that the secondary data refers to information that has been previously generated and processed, i.e., **quantitative data*** that was collected for purposes other than the specific needs for which they are being required, but which are easily accessible and analysed. In general, this information is pro-

duced from the data sources mentioned in Chapter 2, which are used to collect socio-demographic information required during the preparedness phase.

In turn, the community-level assessment refers to information produced just after the humanitarian crisis occurs, seeking to identify the extent of the affected areas and populations, and to assess their most pressing needs.

Regarding community-level evaluation, quantitative data is generated from observations

Diagram 3. Methods for the collection of information for a rapid assessment in the acute phase

| Action | Methods | Operations ^a | Sources | Implementation time |
|-------------------------------|--|--|---|---------------------|
| Evaluation of secondary data. | Desk review. | Collection and analysis of secondary sources. | Projections, censuses, surveys, sectoral data. | Hours-days. |
| | | | Collection and analysis of geo-referenced information generated during the preparedness phase. | |
| Community-level evaluation. | Qualitative. | Key informant interviews. | Decision makers, service providers, community leaders, local authorities, school directors, among others. | Hours-days. |
| | | Focus groups. | Affected population. | Days. |
| | | Observation. | Affected Area. | Days. |
| | Quantitative. | Quick count. | Affected population. | Weeks. |
| | | Spatial analysis (aerial photographs, topographic maps, satellite images). | Affected Area. | Days-weeks. |
| | Monitoring and evaluation of specific actions. | Qualitative and quantitative. | Target population by activity, service delivery points. | Ongoing. |

Source: UNFPA (2010:37. Table 5.).

about population phenomena; it is collected through specific methodologies and procedures, subject to evaluation, captured in tables or frames and pre-sorted into groups or classes.

As for qualitative methodologies, they do not attempt to quantify but instead contribute to the understanding about how and why certain phenomena occur. In general, these results stem from free and structured interviews, including focus groups, surveys using open-ended questions, observation, and others.

Diagram 3 summarizes the main methods used to collect information for a rapid assessment in the acute phase.

3.2.1.1. Secondary Data Review

Secondary data review is a standardized methodology for the systematic collection and analysis of secondary data, i.e., information already collected and disseminated by other organizations and/or researchers. A secondary data review is a continuous process of collection and analysis of pre- and post-disaster qualitative and quantitative information. It has a crucial role during the first stages of an emergency, in which the collection of primary data is limited by human resources, time and access restrictions. Here, the collection and analysis of secondary data mentioned in Chapter 2 of this document, carried out during the preparedness phase, is crucial. The result of this activity contributes to the initial identification of affected groups and their specific needs, in order to ensure the effectiveness of humanitarian operations. Therefore, the analysis of secondary data must be carried out on an ongoing basis every time new information is produced by the respective organisations.

As mentioned above, the information collected prior to the disaster is particularly important because it helps to identify pre-existing vulnerabilities and risks that may have been exacerbated as a result of the disaster. The lessons learned from similar events in the past –in terms of priority needs and interventions– are also valuable.

Post-disaster secondary information includes all of the information directly related to the disaster and not collected through a community-level assessment. It provides an accurate description of the present crisis and –if it is cross-referenced with the information prior to and following the disaster– and helps to assess the impact of not only the crisis but of the humanitarian interventions.

Information must be structured based on the analytical space-time framework, and organized around three key variables:

- Date.
- Affected population group (i.e., homogenous groups of people who share similar characteristics in the way they are being affected).
- Geographic location.

When analysing secondary data, it is necessary to conduct a comparative analysis of the pre- and post-disaster situation (“before and after”) in order to assess the impact of the disaster. It is also important to compare the differences between the various affected populations at the geographic (i.e., the areas that require priority attention) and sectoral (for example, health, water and sanitation, etc.) levels. The identification of needs and information gaps in this stage will serve as important input for the subsequent phases of the assessment.

Diagram 4 contains more detailed information for the analysis of the secondary data and its comparison to the information obtained during the preparedness phase.

3.2.1.2. Community-Level Assessment: Qualitative Methods

The main data collection method of the MIRA approach consists of a standardized methodology to collect, compare, and analyse primary data obtained directly from the affected communities. It is essential to take into account the humanitarian crisis facing the affected community. Beyond trying to collect and analyse information at the community level, it is crucial to observe and enforce the principles of human

rights to avoid raising false expectations among the population. In this case, pre-existing data collection and analysis protocols and ethics guidelines in each country in the region should be respected, so as to ensure the principles of protection of affected populations.

The MIRA approach takes into account the inherent limitations of primary data collection during the first stages of emergencies (for example, the limited number of non-representative sampling sites) and is the basic complement for the review of secondary data (MIRA, Final Draft, February 29, 2012).

In this context, there is an emphasis on the need for coordinated assessments. This refers to the need to strengthen local capacities, establishing mechanisms linking national and international bodies, limiting the possibility of generating false notions of parallel systems. The MIRA approach presents guidelines for local capacities to avoid the duplication of efforts and establish a common methodological framework for initial rapid assessments.

The assessment at the community level is carried out by applying qualitative and quantitative methods.

Diagram 4. Socio-demographic indicators and secondary data sources for an initial rapid assessment of the area affected during the acute phase

| Suggested prioritization | Indicators | Level of disaggregation | Source |
|--------------------------|---|--|---|
| Essential indicators | <ul style="list-style-type: none"> • Size and distribution of the affected population (by sex, age group, women of reproductive age, children, adolescent and youth, people with disabilities, etc.). | <ul style="list-style-type: none"> • Administrative Units. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Population censuses. • Population projections. |
| Essential indicators | <ul style="list-style-type: none"> • Number of service providers by type: health, education, transportation, communication and others. • Number of service providers (by type, with emphasis on the provision of maternal and infant health care services). | <ul style="list-style-type: none"> • Administrative Units. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Administrative records. |
| Recommended indicators | <ul style="list-style-type: none"> • Mortality rate (maternal, infant, general). • Ratio of population below poverty line. | <ul style="list-style-type: none"> • Administrative Units. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Vital statistics, household surveys. |
| Recommended indicators | <ul style="list-style-type: none"> • Traditions and customs in affected zones. • Perception of roles of men and women. • Cultural habits. | <ul style="list-style-type: none"> • Administrative Units. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Other sectoral sources. |

Source: Adapted for Latin America and the Caribbean by UNFPA (2010:35, Table 4).



Since the indicators included in Diagram 4 correspond to a selection of those presented in Diagram 1 of this document and were already discussed in the preparedness phase, for further information, please, refer to: *Operational tools of the Guidelines (Annex I)*.

Suggested qualitative methods include:

- Key informant interviews.
- Focus groups.
- Remarks.

3.2.1.2.1. Key informant interviews

These are interviews of key individuals in an affected community, such as service providers, community leaders or randomly selected individuals, NGO representatives, etc., who would express representative views of their community. They contribute valuable information for the analysis of the initial situation.

In all cases, given the critical situation experienced by the affected population that is struggling to survive following the disaster, it is recommended that the urgent need for a methodology of this kind be evaluated and always guided by the respect for human rights and “do no harm” principle.

It is important to include and account for indigenous users, as they do not speak Spanish. This can create gaps and/or underreporting of indigenous or native populations.

What information is expected from key informant interviews?

The knowledge and leadership of interviewees would provide accurate information on the damage caused by the disaster to households and the population of the affected community, the resources available to the community to cope with the situation and the main demands that require the attention of community stakeholders.



A proposal to develop interviews of key informants is included in: *Operational tools of the Guidelines* (Annex II).

3.2.1.2.2. Focus groups

Focus groups are a qualitative method of collecting information that may be used in a complementary manner or as an alternative to a

population survey with interview or other qualitative methods of information collection (for example, key informants). Since the objective is to collect useful information to acquire knowledge, conduct an assessment, or make a decision, a focus group may be useful when a given group is convened to select participants by consensus –formal focus group– such as when, at a given moment, it is possible to establish a conversation between a group of people in a casual environment without any pre-established selection criteria –informal focus group–.

The focus group technique, also known as exploratory group interview, consists of applying semi-structured interviews to homogenous groups of 6 to 12 people (female heads of household, for example), for the purpose of exploring a given issue or subject that concerns them. Communication goes both ways and seeks to obtain specific information as previously determined. Among other criteria, full confidentiality and respect are essential in conducting the interviews. Those responsible for conducting these focus groups are duty bearers and must ensure the protection and fulfilment of rights at all times.

Although focus groups are highly relevant for the collection of information in very short period of time, we must bear in mind that the results obtained are only valid for that group, not for the entire community. Other strengths and limitations include the following (Chart 15):

As with the key informant interviews, the critical situation that the community is experiencing –struggling for survival or searching for family members affected by the disaster– generates the need to assess the urgent need for a methodology of this kind, always guided by the respect for human rights and “do no harm” principle.

Similarly, it is important to include and account for indigenous users, as they do not speak the official language. This can create gaps and/or underreporting of indigenous or native populations.

It is important to mention the most common mistakes that often arise during the collection of



A proposal to carry out focal groups is included in: *Operational tools of the Guidelines (Annex III)*.

information. For example, the way in which questions are asked during the in-depth interviews with key informants and/or focus groups often creates expectations among the population, which understands and expects that humanitarian aid will arrive or become effective immediately as a result of the answer. Consequently, it is important to review how the questions will be asked, in order to ensure that, during the acute phase of an emergency, data collection and needs assessments do not create expectations among the affected population, based on the “do no harm” principle.

What information is expected from the focus groups?

In this case, the community itself, leaving aside the leadership, would report information about one or two specific challenging issues in the community that need assessment, for example, the performance of organizations and/or humanitarian actors that are providing assistance to the community, or the experience of specific situations of widespread violence or gender violence, reproductive health needs and health in general.

3.2.1.2.3. Observation

Observation must be made in the field of the affected area to contribute **qualitative data*** about the main human and material damages sustained.

In this case, whether it is a first-hand personal observation in the field, or observing the area by vehicle or helicopter, the information collected must be structured according to the following three priorities:

- Date.
- Affected population group (i.e., homogenous groups of people who share similar characteristics in the way they are being affected).
- Geographic location.

3.2.1.3. Community-Level Assessment: Quantitative Methods

The following techniques are used to gather quantitative information:

- Patial analysis.
- Flow monitoring.
- Headcount.
- Quick counts.

Chart 15. Strengths and limitations of the focus group methodology

| Strengths | Limitations |
|---|---|
| Effectiveness: Large amounts of information in a very short time. | Limitation: Results may only be generalized within the group, and not the entire community. |
| Scope: it enables working with individuals with gisnificant cultural differences, and is normally consistent with the dynamics of the community. | Group pressure: there is a trend towards member conformity, especially in collectivist societies. |
| Simplicity: they may be undertaken by any team member with relatively little training. | A moderator who is very predisposed towards an option may steer the group in a given direction. |
| Depth: it allows on-site clarification of confusing issues. | In certain situations it is difficult to prevent the group from becoming emotional, and the exchange may overwhelm the facilitator. |

Source: Pérez Sales y Truñó i Salvadó (2004:59).

3.2.1.3.1. Spatial analysis

Aerial photographs, real-time satellite images and topographic maps are analysed to estimate the size of the affected and/or displaced population, its location and accessibility. This provides information to define the type of humanitarian aid that needs to be deployed and facilitates the transfer of support to the affected zone. An analysis of aerial photography can provide a clear idea of the population dispersion and the possible direction of population movements.

Since all humanitarian crises require a spatial analysis of the information, it is recommended that work teams include an expert in the field to collect, process and update digital cartography.

3.2.1.3.2. Flow monitoring

It is best used in cases of sudden population movements from or to an area with a known population profile. It involves monitoring all points of transit: bridges, entry and exit ports, intersections, confluences, etc., and recording the movements at those points. The objective is to estimate the size of the population that is mobilizing as a result of the disaster, without attempting to characterize the displaced population based on other attributes.

3.2.1.3.3. Headcount

The method consists of the development of a list of all people who have migrated to a specific area seeking shelter. This is the first step towards the subsequent collection of additional information. The headcount may begin at the very moment of the emergency and may continue by following individuals on their way to camps.

3.2.1.3.4. Quick counts

- Enable the establishment, in a very short time period, of an information baseline that will serve as reference for more detailed surveys.
- Field staff only requires basic training.
- Recommended in the early phases of population displacement.

- They are simple tools to estimate the total affected population.
- A simple, approximate mapping is sufficient.

There are three possible procedures for rapid counts:

- Counting the number of houses through a quick tour of the territory, followed by an estimate of the total population, based on an assumed average number of individuals per house, according to pre-existing statistical information available.
- Using aerial photographs of the affected zone or the refugee camp (see the spatial analysis method), when the affected zone is very removed and difficult to access. The photographs enable a housing count and a total population estimate –applying once again an average of people per house, according to pre-existing information– as well as detection of damaged infrastructures and road conditions. The most recent photographs or images must be used, unless there is a certainty that the affected zone has undergone very little change.
- Visit all households in the field, register head and all members of household, by sex and age.

In this case, the following information should be collected:

- Name of the household head and all household members.
- Relationship of household member to household head.
- Sex of all household members.
- Age of all household members.
- Any special household situation, including whether there are women, pregnant women, and/or people with disabilities or chronic diseases requiring special attention.

This approach increases collection time; therefore it is necessary to assess whether it is cost-effective.

To guarantee the timeliness in the availability of data, it is necessary to produce information within the shortest amount of time possible. This may only be possible when teams have appropriate data collection, processing and interpre-

tation skills. Note that technological resources such as mobile devices or PDAs may facilitate data collection. However, basic training, access to a power supply network, and good communication networks are required for their efficient use. They enable data to be captured automatically in the field, simultaneously feeding the central database through a network connection. They facilitate a real-time analysis and the production of reports with maps and graphs.

However, frequent power outages in emergency situations can interrupt the collection of information. Therefore, it is always necessary to be prepared with the traditional printed questionnaire and pencils or pens. Immediately afterwards, the data should be recorded in electronic form.

3.2.1.4. Analytical framework

The analytical framework is based on three dimensions –date, population groups, location–. It supports the primary and secondary data collection and provides a structure to report results and identify needs. Therefore, it helps humanitarian actors to reach a common understanding of the main strategic priorities.

The definition of the preliminary scenario is the first output of the MIRA approach and should be submitted within the first 72 hours following a disaster in order to inform initial response planning and prioritize calls for assistance. The preliminary scenario may and should be updated to reflect the evolution of the situation.

The final product is the MIRA report. It needs to be produced within 2 weeks following the catastrophe to inform response planning, including a review of the calls (MIRA, Final Draft, February 29, 2012).

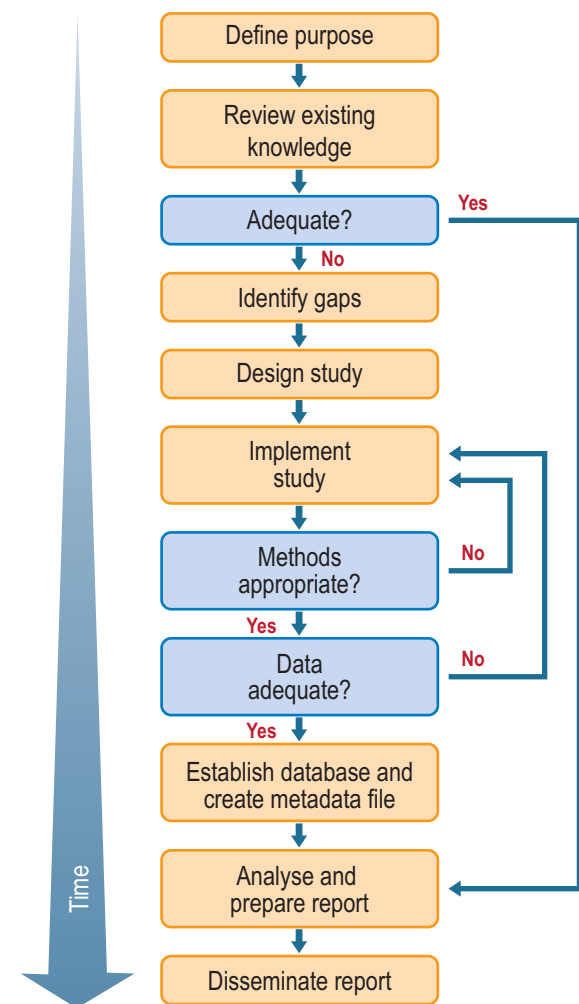
3.3. Operational Aspects

The mechanism for a humanitarian response to an emergency is generally activated in the acute phase (see Figure 6). The course of action is based on the Humanitarian Charter and the **Sphere Project***, which establish the minimum

standards for humanitarian response (Sphere Project: <http://www.spherehandbook.org/>).

In this stage, there must be access to minimum requirements (water, sanitation, food, nutrition, housing, protection, and health services) to ensure the human rights of the individuals affected and fulfil their basic requirements for a dignified life.

Figure 6. Development process of rapid survey during the acute phase



Source: UNFPA (2010).

Essential rules:

- **Person-centred humanitarian response:** The strategies used by people to survive are an integral part of the design and approach of the humanitarian response.

- **Coordination and collaboration:** Humanitarian response is planned and implemented in coordination with the relevant authorities.
- **Assessment:** The priority needs of the disaster-affected population are identified through a systematic assessment of the context.
- **Design and response:** The humanitarian response is based on the needs of the affected population.
- **Performance, transparency, and learning:** There is a continuous examination of the performance of humanitarian organizations; projects are adapted in response to performance.
- **Performance of humanitarian personnel:** Humanitarian agencies provide appropriate management, supervisory and psychosocial support, enabling humanitarian personnel to plan and implement an effective humanitarian response.

The collection of information in this phase seeks to assess damage and identify needs. To this end, it is necessary to rely on the background data obtained during the preparedness phase.

Prior to leaving for an affected zone, it is important to have all available socio-demographic information (infrastructure, vital facilities, human resources, history of disasters and their consequences in the region).

A rapid needs assessment must always begin with a review of the existing information, integrated during the preparedness phase. If such information does not meet the current knowledge needs, it will be necessary to proceed to data collection and analysis with alternative specific methods for the acute phase, as shown in Diagram 3. These may be combined depending on the type of assessment, the nature of the information, and the purpose and physical and spatial conditions of the affected area.

Data collection and analysis should answer the following key questions:

- **What happened?**
Describe the event.

- **Is there an emergency situation?**
A first impression of the scope and needs of people.
- **What are the characteristics of the emergency situation?**
Provide and account for damaged vital infrastructure and degree of damage.
- **How many people have been affected?**
A first estimate of the population affected, disaggregated by sex and age.
- **What is the spatial location?**
Use one or more administrative units as the case may be, to define the location.
- **Which population groups are most vulnerable?**
Differentiate between women, including pregnant and nursing women, children, adolescents and youth, unaccompanied children, the elderly, and people with some chronic disease, people with disabilities, people living with HIV.
- **What type of specific interventions are needed in terms of humanitarian assistance?**
Information on households and household members.
- **What hazards may worsen the situation?**
Recover the risk analysis in the Contingency Plan.
- **What type of resources and capacities are available in the affected area which may support the humanitarian response?**
List of resources from administrative sources.
- **What capacities are needed?**
Refer to the Contingency Plan, or make a rapid assessment.
- **What type of necessary or missing information may be obtained with a qualitative approximation?**
Information about a violent environment within the communities and households, and health and reproductive needs in general.

During the acute phase, several organizations appear on the scene and begin to try to build their own data and estimates, thus decreasing collaborative efforts among those organizations.

For this reason, it is recommended that these activities be carried out by experts, professionals, and technicians from the NSIs and sectoral agencies, as well as local government offices, and that they compile the baseline information as early as the preparedness phase, in order to best respond in the event of an emergency.

Similar, the NSIs could provide the technical skills required to apply quantitative methodologies within a short time period in the acute phase. In turn, sectoral agencies would have the skilled technical and professional specialists in the areas of health (therapists, psychologists, sanitation agents, etc.); education (instructors at all levels, etc.); and social sciences (social workers, sociologists, anthropologists, etc.); with experience in interviewing vulnerable populations, who may provide the specialized human resources to apply qualitative methodologies within a short period.

However, since the task implies the maintenance of various government agency databases, it is necessary to ensure an effective coordination of the services by responsible national agencies capable of assuming this role. The aim is to produce the information needed and its efficient use, by means of coordinated data management. The Country Humanitarian Network Protocols could be used to facilitate this process as they already include specific guidelines for inter-governmental coordination, and between national and international agencies.

It is equally important that the information integrated in the database is analysed by using a GIS during the acute phase, in order to inform and guide the urgent humanitarian response.

Another important element of data collection and analysis during the acute phase is the possibility of data loss as a result of the impact of a major disaster. This should be considered and anticipated. Whether the data was collected during the preparedness phase and/or obtained immediately following the disaster, each country should have an accessible backup system in order to minimize the risk of data loss in humanitarian crises.

3.3.1. Data Analysis

Analysis is the process whereby the collected data is used.

The product of this stage is the generation of an assessment to inform decision making and contribute to the prioritization of actions in areas such as health, reproductive health, gender, violence against women, etc.

This requires the:

- Identification of the units of analysis: housing, households, individuals, etc.
- Organization of data according to variables, in order to characterize the affected population, by unit of analysis.
- Establishment of the analysis criteria.
- Quality assessment of the information gathered.
- Cross referencing of variables as necessary.
- Processing of the information.
- Representation of the results with maps, graphics.
- Proceeding with the analysis.

It is also important to always look at the quality of the collected information. In general, the initial data will provide gross estimations –total population and infrastructure damaged– that will later be refined according to the specific characteristics and demands of displaced populations and other specific demands to be resolved during the acute phase.

Regarding the quality of information, there is a risk of double counting affected populations. In this case, planning and coordinating for the allocation of unique geographic areas, by specific groups of displaced people, helps to avoid repeated visits by different humanitarian actors during the same period. Similarly, integrating personal identification documents within the information system will facilitate the task of identifying duplicate records (people).

Analysis is the interface that converts the data collected into inputs for decision making. Therefore, the final report will:

- Present data in a clear and precise manner, without room for confusion.
- Present needs, from those with the highest priority to the least urgent.
- Locate the critical spots in the affected territory.
- Express population indicators in absolutes and percentages, disaggregated by age and sex, to establish the magnitude of the effects by sectors and groups to be assisted.

The way information is disseminated to both the population and the highest authorities responsible for coordinating humanitarian aid is a very important issue. Basic information for dissemination includes:

- Event.
- Date of occurrence.
- Specific area of impact.
- Report date.
- Agency responsible for the report.
 - Report on the quantification of the affected population.
 - Report on the needs of the affected population.
 - Report on the resources and capacities in the fields of health, security and educational infrastructure available in the affected area.



An expanded proposal for reporting during the acute phase is included in: *Operational tools of the Guidelines (Annex V)*.

3.4. Lessons Learned by Latin American and Caribbean Countries on Data Collection and Analysis during the Acute Phase

Recent experience with disasters and humanitarian crises of great magnitude in the region, such as those in Haiti (Example 11) and Chile in 2010 (Example 12) confirm the importance of having previously prepared socio-demographic information, particularly on the basis of population, household, and housing censuses and population projections that may allow a rapid assessment of the damages and the assistance to victims. The specific case of the floods in the province of Santa Fe, Argentina, in 2003 (Example 13) is expressed in that same way, even without an Early Warning System or Contingency Plan prepared prior to an emergency. Example 14 (see p. 84) presents some of the selected results of the selected MIRA approach applied to the Guatemala earthquake of November 7, 2012, disseminated in November of that year.



Example 11. Experience with rapid assessment, Haiti, 2010

In the case of Haiti, the elderly and female heads of household are the two most **vulnerable groups*** affected by the 12 January earthquake in Haiti. That finding was among the preliminary results of a rapid needs assessment carried out by the IASC (Inter-agency Steering Committee), coordinated by OCHA (the Office for Coordination of Humanitarian Affairs), together with the Haitian government.

The purpose of the needs assessment was to provide a quick and factual overview of the emergency situation in Haiti, making initial estimates of needs more precise and improving the ability to define priorities for the ongoing assistance. The survey also helped to identify continuing or emerging threats that could escalate the emergency.

The questionnaire focused on population size and movements, as well as the availability of shelter, and access to food and water. A section focusing on gender issues revealed that nearly half of those asked felt there was a lack of privacy for women living in makeshift camps and on the street, while the vast majority said that designated latrines are not available for women, increasing their potential vulnerability to rape and other forms of gender-based violence.

Eighty student and professional volunteers recruited by UNFPA, the United Nations Population Fund, were among the more than 100 surveyors from many different organizations and backgrounds who conducted the survey, which covered the entire country. "The survey is not only based on interviews with key people in affected areas, but also on recent census data", explained Gabriel Bidegain, a demographer who works for UNFPA in Haiti.

Topographers used hand-held computers to collect data. Volunteers used a combination of hand-held computers and a 12-page questionnaire to record the information.

In the areas devastated by the earthquake, creative approaches to getting around were employed, as many streets are still blocked by fallen bricks, mangled iron rods and other debris; or by people who have set up camp and are sleeping in the street.

Source: UNFPA-Haiti website: <https://www.unfpa.org/public/home/news/pid/4832>



Example 12. Potential of census information in humanitarian crises, Chile, 2010

Moreover, the relevance of the information provided by population and housing censuses makes them an irreplaceable tool when estimating the number and main characteristics of all inhabitants within a given territory and their residences. This is observed in the example of the earthquake and tsunami that devastated Chile in 2010. In addition, the development of computer packages, such as REDATAM, as developed by CELADE, the ECLAC Population Division, enabled rapid and user-friendly access to reliable and quality information about the entire population on a scale as detailed as a city block or rural zone or location. To complement this, the possibility of graphing this microdata in the territory through Geographic Information Systems (GIS) enhances the potential use and application of this information. In addition to being continuously updated, the combination of both tools positions the censuses as the most precise, available and detailed source of data on population and housing for the assessment of damages and losses caused by a disaster.

In this case, Silva and Espina (2010) conducted an experimental implementation by using census data from 2002 on the city of Constitucion near the February 2010 earthquake epicentre in Chile.

The community of Constitucion is located south of the capital of the country, in the Maule region. According to the last Population and Housing Census of 2002, it had a population of 46,081 inhabitants, of which 37,202 were urban and 8,879 rural dwellers. Although it was a sparsely populated community, it was near the earthquake epicentre and was also devastated by the tsunami after the movement.

There were 32,927 inhabitants counted in the urban section of the city of Constitucion, representing 71.5% of the total community and 88.5% of the community's rural population.

In the early morning of February 27, a tsunami flooded 79 blocks of the city's urban centre. According to the population and housing census, 8,796 people lived in these blocks. Their main socio-demographic characteristics in terms of their structure by age, sex and masculinity rate, selected as an example of the potential of census results to contribute to decision making in situations of humanitarian crises, are as follows:

- The composition by age and sex of the inhabitants of the flooded area of the city of Constitucion was older than the population in the unaffected area. The population pyramid built on the basis of the 2002 census data demonstrated that the number of senior age groups was unexpectedly larger in the pyramid of the flooded blocks than in the pyramid representing the area unaffected by the tsunami. The structure of the population in the zone that was not exposed to the tsunami was found to be younger. In this sense, based on the 40 to 44 age group, the weight of the older or more senior groups is larger in the flooded population than that of the population of the unaffected zone.
- Analysts of census information maintain that it is very probable that the older age group in the area is related to the greater consolidation and age of this zone of the city (adjacent to the river banks and nearest to the main square).

Moreover, the ratio between the number of men and women in the two zones analysed (the flooded zone and the unaffected zone) as shown by the masculinity ratio, indicates a higher number of women in the zone of the city where the ocean flooded houses and streets.

Source: A. Silva y R. Espina (2010).

How the disaster occurred

The 2004 floods in the province of Santa Fe began to be destructive during the second half of the month of April, when there was massive flooding of the capital city of the province on April 29, 2003.

The peak of the flood affected the health service infrastructure –three hospitals and 10 dispensaries–located in the flooded zone.

First decisions

• Collection and analysis of the necessary information from secondary sources:

- From the beginning it became indispensable to quantify the number of victims and their characteristics. In this case, starting with the base provided by information taken from the National Population, Household, and Housing Census of 2001: the censuses were updated s by integrating the information with the databases from records available at the time, such as the Property Registry and the Civil Registry.
- Thus, a single register of 1) evacuated people and evacuation centres; 2) victims who did not go to these centres; and 3) people who decided to stay in their homes despite the flooding.

• Coordination and collaboration:

- In view of the serious crisis, a Strategic Committee chaired by the Minister of Health and Environment was created with the participation of officials with political responsibilities at the provincial and national level. A Health Operations Centre was also established with provincial and national health professionals, and various responsibilities were assigned to the officials in charge. This Centre was responsible for centralizing the information on all health actions during the emergency, and for the decision making on health matters for subsequent implementation.
- A special form of *ad hoc* organization was therefore adopted with a defined and clear chain of command, and communication channels were strengthened and intensified so that instructions would be received directly and quickly by those responsible for their implementation.

• Assessment of the needs of the population affected by the disaster:

- The established objective was to ensure the levels of health of the affected population that had been displaced from their usual dwellings, and prevent the spread of preventable diseases throughout the general population.
- The following actions were developed to this end:
 - A survey of the operation of evacuation centres (hygiene, sanitation, and security conditions, and the availability of potable water) and information about the evacuated population, in order to identify risk groups by pathology.
 - This information was used to design intervention actions for the supply of vaccines and medications, disinfections, fumigations, surveillance, food needs, etc.
 - A survey of the operation of health centres.

Example 14. Multi Cluster/Sector Initial Rapid Assessment Approach (MIRA). Guatemala Earthquake, November 2012. Selected Disseminated Results

DRIVERS OF THE CRISIS

- **What:** A 7.2 magnitude earthquake.
- **When:** November 7, 2012.
- **Where:** On the Pacific Coast of Guatemala, with an epicentre 24 kilometres from Champerico, and 160 kilometres southwest of the city of Guatemala. This is the highest-magnitude earthquake since 1976, when an earthquake resulted in 23,000 deaths. (INSIVUMEH, 7 Nov.).
- **Aftermath:** There were 214 aftershocks recorded through November 19, with magnitudes between 3.5 and 6.1 on the Richter scale. Of these, 10 have been reported as sensitive. (INSIVUMEH, 19 Nov.).
- **Vulnerabilities and Risks:** The aftershocks generated mudslides and landslides, especially in the area known as Barranca Grande in the Department of San Marcos. Landslides in Nebaj and Sacapulas in the Department of Quiché destroyed six bridges. (AFP, Gobierno de Guatemala 12 Nov.).
- **Weather:** There are 12 consecutive cold fronts expected in the affected areas. These may generate respiratory infections in the population living in temporary shelters, especially in the elderly and children. (INSIVUMEH, 12 Nov.).










UNDERLYING FACTORS

- **Poverty and recurrent natural disasters are the major vulnerability factors, increasing the impact of the earthquake and obstructing recovery:**
 - More than 59% of children and adolescents live in poverty, 19.2% in extreme poverty.
 - In 2012, one million Guatemalans (7% of the total population) were affected by natural disasters. (WFP Market Monitoring, 17 Oct.).
 - The 2009 drought in Guatemala and the 2012 floods caused an increase in rural and extreme poverty. (WFP Market Monitoring, 17 Oct.).
- **Solola and San Marcos:**
 - Organized crime, the displacement of farmers, migration, lynchings, and the relevant number of deportees arriving from the United States, remaining outside the work circuits. (UNDSS).
 - Mass indigenous civilian protests due to problems in mining and hydroelectric plant areas.

SCOPE OF THE CRISIS AND HUMANITARIAN PROFILE

- **Quetzaltenango:**
 - Total of 2,136 damaged houses, of which 697 sustained severe damage, and 571 of these were demolished. (COE Quetzaltenango).
 - The National Peace Fund (Fonapaz) initiated the demolition of housing, which is also responsible for quantifying damaged and destroyed housing.

IMAGE OF POPULATION DATA

| | | |
|--|--|---|
|  Affected Population 3.078.796 |  Disaster-stricken Population 26.595 |  Evacuated 33.951 |
|  Disappeared 0 |  Injured 186 |  Deceased 44 |
|  Homes Damaged 32.797 |  People Sheltered 6.174 |  Health Unites Damaged 26 |

- **Substantial infrastructure damage:**
 - Of the 26,938 damaged houses; 6,076 are dwellings at risk, 6,634 are slightly damaged, 7,943 have sustained moderate damage, and 6,285 are severely damaged. (CONRED, 19 Nov.).
 - Pocol and Chichicastengango: 48 destroyed houses, 130 damaged.
 - Patzite: 8 destroyed houses.
 - Quiché: 9 affected municipalities.
 - Cotzal: 1,500 people affected.
 - San Marcos: 12,549 damaged houses, of which 5,046 will be demolished. (COE San Marcos).
 - Solola: 1,291 severely damaged houses.

Source: MIRA (Multi-sectoral Initial Rapid Assessment) Report. *Guatemala Earthquake 2012*.



Chapter 4

Data collection and analysis during the chronic phase

4.1. Overview

- When a crisis is prolonged, displaced populations must be relocated temporarily in camps for refugees/displaced people, and in shelters. The crises associated with a lack of personal security occasionally cause the displacement (or forced migration) of the population away from their place of residence, to territories within the country, or even to neighbouring countries.
- In other cases, due to the extent of the crisis, people choose to remain in the affected area, foreseeing situations of insecurity.
- The most pressing needs are generally: restoring health services and schooling for children, protecting the rights of affected people, including the protection of women and girls from violence, as well as the supply of potable water and cooking fuel and the availability of food for preparation.
- People in these conditions experience a complex situation, and therefore need continuous support from humanitarian actors, who must monitor the evolution of the condition of the entire population, especially of the most vulnerable people, ensuring the fulfilment of their human rights at all times.
- The affected population must be assisted to receive basic services (health, hygiene, food, water, education, protection), temporary shelter. The duration of such a transition may differ considerably from one case to another.
- The most vulnerable population groups (women, children, adolescents, people with a disability or disease, living with HIV, with a chronic ailment, and the elderly) disproportionately suffer the effects of insecurity, living conditions, and uncertainty.
- The potential impacts of earthquakes on densely populated urban zones, as was the case of Haiti in January 2010, can prolong the crisis for months and years as the reconstruction of the housing and vital infrastructure becomes slow and difficult.
- As for the preparedness and acute phases, the collection of information in the chronic phase is a task that concerns the national and international agencies, and therefore coordination between them continues to be indispensable for adequate data collection, validation, and analysis.



For more information on this section, please refer to: *Handbook for the implementation of the Guidelines (Training Workshops by Phase)*.

4.2. Collection and analysis of relevant Information for the chronic phase

4.2.1 Information needs and indicators to collect-analyse and data sources

Diagram 5 (see p. 87) summarizes the main data needs, the list of suggested indicators, and the selected data sources for collection and analysis during the chronic phase.

These indicators seek to guide humanitarian assistance by estimating the number of households and displaced people affected by the crisis, with a focus on particularly vulnerable populations, requiring special and continuous attention during this prolonged period.

In this case, it is necessary to link information and socio-demographic indicators generated

during the preparedness phase, in order to establish how these estimates may be used in the chronic phase.

As for previous phases, this chapter also includes a systematization of the indicators in order to prioritize their construction during this chronic crisis. The classification distinguishes:

- Essential indicators.
- Recommended indicators.

Also, by recognizing the heterogeneity of situations of LAC countries regarding the availability of socio-demographic statistical information and the diverse coverage and quality of data sources, these Guidelines propose a prioritization of indicators to be collected and analyzed during the post-crisis phase, parallel to the classification for the preparedness phase, as presented in Chart 16 below.

Chart 16. Suggested priorities for the construction of indicators to be included in the chronic phase

| Types of indicators included in the <i>Guidelines</i> and priorities for construction | |
|---|---|
| ESSENTIAL | <p>These are basic indicators, the indispensable minimum. They are to be built with the highest priority, among the broad spectrum of indicators suggested in the chronic phase.</p> <p>Together, these indicators enable an assessment of the size and geographic distribution of the population and displaced households that could be affected by a disaster –in particular, specific groups such as children, adolescents and youth; women; the elderly; people with disabilities who require special care–, in addition to generating an idea of the causes and directions of movement of the affected population and reproductive health needs inside and outside the places where the population is being housed.</p> |
| RECOMMENDED | <p>Simultaneously, it is essential to have indicators to help guide humanitarian assistance by understanding the local responsiveness in terms of health care services, building infrastructure (hospitals and schools), specialized human resources, transportation and communication, currently available to serve homes and displaced populations.</p> <p>These are second priority indicators that, in general, contribute to characterize displaced populations by livelihoods and desired protection resources.</p> |

Source: UNPFA (2013).

In all cases, when it comes to prioritize the information and indicators to be developed first because they are considered essential in the chronic phase, it is suggested that the following be prioritized:

- Estimated number of households and displaced people affected by the crisis.
- Estimated number of households and people that remain in the affected area.
- Causes and direction of population displacements.
- Capacities of the health sector in the areas where the displaced population is housed and affected areas.

Diagram 5. Information needs, indicators and data sources for the chronic phase

| Essential information | Essential indicators | Sources |
|---|--|--|
| Estimated number of households and people affected by the crisis. | <ul style="list-style-type: none"> • Number of households. • Number of female-headed households. • Number of households and homeless people. • Number of people by age and gender. | <ul style="list-style-type: none"> • Quick counts. • Rapid sample surveys. |
| Causes and direction of population displacements. | <ul style="list-style-type: none"> • Number of refugees by place of origin. • Number of refugees according to their recent place of residence. • Number of refugees by displacement itinerary. • Number of refugees wishing to return. • Number of refugees wishing to remain in their current place of residence. • Number of refugees wishing to move elsewhere. | <ul style="list-style-type: none"> • Listing and profiling. • Rapid sample surveys. • Baseline surveys. • Reports of other humanitarian agencies. • Key informant interviews. |
| Capacities and skills of health and education service providers inside and outside the camps. | <ul style="list-style-type: none"> • Number of health care providers (nurses, physicians, midwives, psychologists, social workers, etc.). • Number of fully/partially functional health facilities. • Prevalence of various infectious diseases. • Declared causes of primary diseases. • Number of teachers in the camps. • Number of educational initiatives in the camps. • Number of pupils in educational programmes in the camps. • Number of schools (functional and partially functional). | <ul style="list-style-type: none"> • Surveys (in camps and within the host community). • Administrative records, rapid assessments, reports by other humanitarian agencies. |

Diagram 5. Information needs, indicators and data sources for the chronic phase *(continued)*

| Recommended information | Recommended indicator | Sources |
|---|---|---|
| Reproductive health needs inside and outside camps. | <ul style="list-style-type: none"> • Number of women of reproductive age. • Number of pregnant women. • Number of pregnant women with complications. • Number of pregnancies ending in miscarriage. • Number of pregnant women with anaemia. • Number of high risk pregnancies. • Number of births by place of delivery (home, health centre, hospital). • Number of women who received antenatal care in health facilities. • Number of women who have post-natal care. • Number of lactating women. • Number of women of reproductive age using a modern contraceptive method. • Number of women not using and demanding a modern contraceptive method. • Number of condoms distributed. • Number of unwanted pregnancies. • Prevalence of TB. • Prevalence of HIV/AIDS. • Proportion of HIV positive cases on antiretroviral treatment by age and sex. • Number of maternal deaths. • Number of death by age and sex. • Prevalence of sexual assault. • Number of people to receive health treatment. | <ul style="list-style-type: none"> • Surveys (in camps and within the host community), administrative records, rapid assessments, reports by other humanitarian agencies. |
| Recommended information | Recommended indicator | Sources |
| Livelihoods. | <ul style="list-style-type: none"> • Number of household/family heads by type of current economic activity, age and sex. • Number of household/family heads by current income source, age and sex. | <ul style="list-style-type: none"> • Rapid sample surveys (in camps and within the host community), reports by other humanitarian agencies. |
| Protection resources. | <ul style="list-style-type: none"> • Number of refugees with mobile phone service. • Number of refugees with identification papers. • Number of refugees receiving protection. • Number of households experiencing physical violence towards another household member. • Principal security concerns of refugees by sex and age. | <ul style="list-style-type: none"> • Field surveys, reports by other humanitarian agencies. • Focus group interviews. • In-depth interviews. • Participant observation. |

Source: UNFPA (2010:63-64. Exhibit 4.2).

4.2.2 Methodologies and Data Sources

As suggested in the previous chapter on the acute phase, part of the methods suggested for the collection of information in cases of prolonged crises are both quantitative and qualitative.

Quantitative methodologies include:

- Quick counts.
- Rapid listings.
- Rapid sample surveys.
- Baseline surveys.
- The collection of information from records generated during the crisis.

The most used qualitative techniques are:

- Key informant interviews.
- Focus groups.
- In-depth interviews.
- Participant observation.

4.2.2.1. Quantitative Methodologies

4.2.2.1.1. Quick counts

As previously detailed for the acute phase, quick counts in the chronic phase:

- Enable the establishment, in a very short period of time, of an information baseline that will serve as reference for more detailed surveys.
- Field staff only requires basic training.
- Recommended in the early phases of population displacement.
- They are simple tools to estimate the total affected population.
- A simple, approximate mapping is sufficient.

There are three possible procedures for rapid counts during this chronic phase:

- Counting the number of houses through a quick tour of the territory, followed by an estimate of the total population, based on an assumed average of people per house, according to pre-existing statistical information available.
- Using aerial photographs of the affected zone or the refugee camp (see the spatial analysis

method), when the affected zone is very removed and difficult to access. The photographs enable a housing count and a total population estimate –applying once again an average of people per house, according to pre-existing information– as well as detection of damaged infrastructures and road conditions. The most recent photographs or images must be used, unless there is a certainty that the affected zone has undergone very little change.

- Visit all households in the field, register head and all members of household, by sex and age.

In this case, it is suggested that the following information be collected:

- Name of the household head and all household members.
- Relationship of household members with the household head.
- Sex of all household members.
- Age of all household members.
- Any special household situation, such as whether there are pregnant women, and/or people with disabilities or chronic diseases requiring special attention.

4.2.2.1.2. Listing and Profiling

These are mainly recommended for the case of internally displaced populations.

The listings are people flow counts, whose characteristics have already been mentioned. It is an initial listing that shall be followed up.

The profile, on the other hand, involves a household-level survey to identify internally displaced people. In this case, it is suggested that the following information be collected:

- Name of the household head and all household members.
- Relationship of household members with the household head.
- Sex of all household members.
- Age of all household members.
- Place of origin of all household members.
- Intention to return.
- Members who have been left behind.
- Members in other areas who wish to meet.
- Health status of household members.

- People in need of special care (chronic disease).
- People with disabilities.
- Women.
- Pregnant and nursing women.
- High-risk pregnancies.

Once the information has been collected, a report shall be prepared focusing on the specific needs of the population, differentiating among population groups.

4.2.2.1.3. Rapid Sample Surveys

These is another option to obtain adequate information. The advantages and limitations of a data source such as surveys have already been mentioned above. In the chronic phase of a humanitarian crisis, the use of rapid sample surveys is preferred for intervention design. They have an interdisciplinary approach and can respond to the information needs of several users at the same time.

In this case, the focus is placed on the short time period in which the information is required and the possibilities generated by the sampling methodology, through the collection of information by means of observation and surveying a representative segment of the total affected population. An adequate sampling design increases the probability of generalizing results until they become representative of all the affected population that has been established as the unit to be observed –the community, town, settlement, camp, etc.; institutions such as hospitals, schools, etc.; households; individuals–. Costs are relatively low and data may be gathered in a short period of time. Nonetheless, they must be applied only when they are highly cost-effective.

For a sample to be extrapolated to the entire affected population, it is essential that the selection of units to be observed is carried out with a random selection method. This requirement adds a complexity factor, particularly when there is considerable population displacement. For this reason, rapid sample surveys are applicable to populations already settled after the disaster. Sampling methods must be developed

by specialists (statistical specialists on sampling design), during a period that includes the possibility of testing its design, for the purpose of ensuring the maximum equivalence between the population selected for the sample and the total population (IASC, 2012:37).

4.2.2.1.4. Baseline Surveys

These are especially useful as point of reference to measure the changes in the humanitarian situation of the affected population and provide **consistency*** to the monitoring work, identifying gaps and setting priorities for the intervention. They can also be used as tools to perform a cost-benefit analysis and identify paths to attain maximum benefit using available resources (UNFPA, 2010:56).

The main contribution of this methodology is to enable a comparison of indicators of a selected population, such as those suggested in Diagram 5, that may originate from a different period of time, a different location, or a different population. It involves a comparison of successive results obtained from selected indicators with prior data, for the purpose of assessing how the situation being analysed is observed in relation to the situation that was measured previously.

4.2.2.1.5. Administrative Records

The data provided on the beneficiary population and public services at an institutional level (health, education, etc.) are useful, above all, because they may be added to various levels (district, regional, and national), depending on the need that is in turn derived from the magnitude of the disaster and the way in which it manifested itself.

This information is used as the point of departure for the design of rapid interventions for basic services.

4.2.2.2. Qualitative Methodologies

Since not all aspects of interest may be gathered or measured with data from counts, surveys, or administrative records, the qualitative informa-

tion is even more important in the collection of information during the chronic phase, where it can fill information gaps generated by the weaknesses of conventional statistics systems.

Qualitative methods are especially recommended for the collection of information on issues such as **gender-based violence***; reproductive health issues; women, children or elderly abuse; kidnapping and trafficking; rights violations; aspirations, expectations and the intentions of displaced people or of those living in shelters.

As for the acute phase, it is important that key informant interviews and focus groups include and account for indigenous users, as they do not speak the official language. This can create gaps and/or underreporting of indigenous or native populations.

4.2.2.2.1. Key-Informant Interviews

These are interviews of key individuals in an affected community, such as service providers, community leaders or randomly selected individuals, NGO representatives, etc., who would express representative views of their community.

In this case, interviews may be semi-structured and, despite their less flexible design, they also exhibit a margin for the reformulation and in-depth analysis of some areas, combining open and closed questions.

What information is expected from key informant interviews?

The knowledge and leadership of interviewees would provide accurate information on households and displaced population, the resources available to the community to cope with the situation and the main demands that require the attention of community stakeholders.



A proposal for possible questions to be asked during key informant interviews is included in: *Operational tools of the Guidelines (Annex II)*.

4.2.2.2.2. Focus Groups

The focus group technique, also known as exploratory group interview, consists of applying semi-structured interviews to homogenous groups of 6 to 12 people (female heads of household, for example), for the purpose of exploring a given issue or subject that concerns them. Communication goes both ways and seeks to obtain specific information as previously determined. Among other criteria, full confidentiality and respect are essential in conducting the interviews. Those responsible for conducting these focus groups are duty bearers and must ensure the protection and fulfilment of rights at all times.

What information is expected from the focus groups?

In this case, the focus groups provide information from the community itself. While leaders in the community generate information about one or two specific challenges in the community that need to be assessed, the focus groups can provide information about the performance of organizations or humanitarian actors providing assistance to the community, or about specific situations of widespread violence or gender-based violence, reproductive health needs and health in general, which continue affecting these population areas. Leaving aside the leadership, which would report information about one or two specific challenging issues in the community that need assessment, for example, the performance of organizations and/or humanitarian actors that are providing assistance to the community, or the experience of specific situations of widespread violence or gender violence, reproductive health needs and health in general, which remain challenging in the areas hosting this population.



A proposal for possible questions to be asked in focus groups may be found in: *Operational tools of the Guidelines (Annex III)*.

4.2.2.2.3. In-depth Interviews

In-depth interviews seek to establish an understanding of the perspectives of interviewees (informants) on a given issue or subject, as expressed in their own words.

An in-depth interview is a conversation between an interviewer and an informant by following the model of a conversation between peers, and not a formal exchange of questions and answers.

Although these interviews may be less costly than surveys, they may require skilled personnel to conduct the interview and organize, implement, and analyse the results.

4.2.2.2.4. Participant Observation

Assessment through observation is applied in those situations that seek to detect behavioural aspects. In participant observation, the researcher enters the area receiving the displaced population, shares his needs with the community, and performs daily activities while collecting information.

In this case, a basic guidelines must be made available with the major aspects to be observed and analyse, in order to provide coherence to the information collected by various observers.

4.3. Operational Aspects

It is recommended that specialists, professionals, and technicians of the NSIs and sectoral agencies, as well local government agency offices, implement these actions and collect the reference information. For example, National Statistics Institutes could provide the technical skills required for survey sampling design and/or the planning and implementation of rapid counts. In turn, sectoral agencies would have the technical and professional skills to provide information from administrative records. These, in turn, have the skilled specialist in the health sector (therapists, psychologists, sanitation agents,

etc.), or in the social sciences (social workers, sociologists, anthropologists, etc.), with experience in interviewing vulnerable populations. All these human resources have the potential to obtain information through qualitative methodologies.

However, since the task implies the maintenance of databases at various government agency offices, it is essential to ensure an articulated coordination of efforts by one responsible national agency capable of assuming this role. The objective is to produce the information required and ensure its efficient use by means of coordinated data management. In this case, it is recommended to strengthen the adequacy of country Humanitarian Network Protocols in order to articulate and coordinate efforts between national and international organizations.

Furthermore, every data collection strategy during the chronic phase should consider:

- Specific and short term objectives.
- The feasibility of the process.
- The timeliness of the results.

4.4. Relevance of Monitoring and Evaluation in Chronic Phase Activities

Needs assessments must never be seen as a final result

The circumstances of crises change and therefore, it is vital to monitor the indicators in order to ensure the effectiveness of interventions.

People living in a situation of high vulnerability should receive aid throughout the crisis.

Most of the monitoring and evaluation mechanisms contained in the Sphere Project for follow-up to ensure the effectiveness of interventions may also apply during chronic crisis situations, especially in camps and other locations where services are provided to refugees and IDPs (UNFPA, 2010:61).

4.5. Lessons Learned by Latin American and Caribbean Countries on Data Collection and Analysis in Chronic Phase

Example 15. Data collection in shelters: the case of the victims of rains in November 2010, Venezuela

November of 2010 was the rainiest month in Venezuela in the last 40 years, with heavy rains leading the Office of the President of the Republic to declare a state of emergency. By the next month, 851 shelters had already been set up to house 31,600 families.

Data collection:

Data was collected in selected shelters. Variables considered were: family, name, age, sex, identification card number, origin, occupation, disability; shirt, pant and shoe sizes, type of housing at origin, type of household goods possessed at origin, etc.

This experience was included in a report prepared by UNFPA-Venezuela, which provides some guidelines for an efficient data collection process:

- One organization must be responsible for coordinating this process to control and consolidate the information from the various shelters at a national level.
- There must be a file management system already in place, for example Word documents and Excel spreadsheets.
- It is essential to allocate resources for computer equipment, pen drives, etc., to ensure proper data recordkeeping and efficient distribution to anyone who may require it.
- Human and material resources are required for the measurement to be a reliable tool.
- It is necessary to expand the advocacy and technical assistance system in order to promote the design and implementation of a single questionnaire to maintain a record of all individuals with a refugee/shelter status that will meet the indispensable requirements for ensuring human rights.

Source: UNFPA-Venezuela. (2011). Proyecto "Ampliación de las capacidades nacionales y locales para incorporar las dimensiones de población y desarrollo, equidad de género y la salud sexual y reproductiva en los diagnósticos y planes de acción para ayuda humanitaria en situaciones de post emergencia" ("Expansion of national and local capacities to incorporate population and development dimensions, gender equality and sexual and reproductive health diagnoses and action plans for humanitarian aid in post emergency situations" Project).



Chapter 5

Data collection and analysis in the post-crisis phase

Unlike the concept of reconstruction, recovery is based on a rights-based approach, which focuses on human beings. Housing, infrastructure, schools are all rebuilt... but emphasis is placed on restoring people's livelihoods.

(UNDP, 2011:17)

5.1. Overview

- The post-crisis phase is the path of return to normality. It is characterized by the restoration of functionality conditions in the affected territory. Its most outstanding features are the re-settlement of the population; the process of reconstruction, rehabilitation, resettlement; the psycho-affective recovery of the people affected by the crisis; and a transition period towards recovery.
- Transition, recovery and reconstruction all path the way to overcoming the disaster.
- The work of providing assistance to the affected populations ends, and regular development programmes to improve the quality of life of individuals are resumed.
- There is a recovery of operations of the affected territory.
- It seeks to improve the previous risk situation.
- The living conditions of the affected population may be improved if the resources allocated to reconstruction are used appropriately.
- Humanitarian and development agencies collaborate with the authorities to create conditions of stability and security.

- Unlike the acute and chronic phases, the post-crisis phase represents the opportunity for a new beginning in order to achieve a transformation.



For more information on this section, please refer to: *Handbook for the implementation of the Guidelines (Training Workshops by phase)*.

5.2. Collection and analysis of relevant information for transition and recovery

5.2.1. What information needs to be collected and analysed in the post-crisis phase?

As noted earlier, the organization into four phases established by UNFPA has a guiding and didactic purpose, and is used as reference in order to simplify and make practical use of the Guidelines, recognizing, however, that emergencies and response are not necessarily static phases, but instead represent a continuum.

Although the transition from one phase to another does not involve a radical change, there is a set of characteristics that differentiates each phase. In the case of the post-crisis period there is a transition towards recovery, and sub-stages of this same phase may be identified.

As noted in the preparedness, acute and chronic phases, during this post-crisis phase, the path towards definitively overcoming the crisis should be a planned process. It is therefore crucial to have updated quality information to guide the assistance required by the affected populations through the completion of the recovery process (see examples 16, 17 and 18; p. 105 and p. 106, respectively).

• Transition sub-stage

The information that may be collected during this period is not very detailed. What is needed is the collection of the first statistical inputs to plan the entire recovery process.

These are general data that provide a gross characterization of the urgent needs at the time, because changes (population displacements, infrastructure damage, interruption of economic activity) usually make previously existing information obsolete.

• Recovery sub-stage

This is the moment in which the path to a total recovery has already begun. More detailed demographic information is required for adequate policy and programme design. The idea is to build back better and assess the depth of the impacts on the population.

Both in the transition and/or recovery sub-phases, data collection and analysis are intended to determine what changes have been verified since the onset of the emergency, as well as its magnitude.

To evaluate the changes that have occurred since the disaster, current values of indicators should be compared to those available in databases developed in the preparedness phase.

Therefore, the results of the indicators suggested in Diagram 6 (see p. 98) for the post-crisis phase are compared against those obtained in Diagram 1 during the preparedness phase.

As for previous phases, this chapter also includes a systematization of indicators to guide their prioritization during the chronic crisis. The classification distinguishes:

- Essential indicators.
- Recommended indicators.
- Desirable indicators.

Also, by recognizing the heterogeneity of situations of LAC countries in terms of the availability of socio-demographic statistical information and the diverse coverage and quality of data sources, these Guidelines propose a prioritization of indicators to be collected and analysed during the post-crisis phase, parallel to the classification for the preparedness phase, as presented in Chart 17 below.

In brief, the following information should be prioritized during the development of the initial indicators to enable data collection and analysis during the post-crisis phase:

- Changes in the number and distribution of housing and household.
- Changes in the size and distribution of population.
- Changes in the age and sex structure of the population and specific population groups.
- Location of basic social infrastructure in the area of healthcare, education, transportation and other services.

This ad hoc classification is presented as a suggestion to help guide the work of countries in addressing the recovery process. The final set of indicators to be selected and developed during this post-crisis stage is ultimately decided by each country and will depend on its conditions for the production of socio-demographic statistical data.



For more information on the development of each indicator, refer to the suggested breakdown in Diagram 1: *Operational tools of the Guidelines (Annex I)*.

Chart 17. Suggested priorities for the construction of indicators to be included in the post-crisis phase

| Types of indicators included in the <i>Guidelines</i> and priority | |
|--|---|
| Essential | <p>These are basic indicators, the indispensable minimum. They are to be built with the highest priority, among the broad spectrum of indicators suggested.</p> <p>Together, these indicators enable an assessment of changes occurred in the size and geographic distribution of the population and households affected by the disaster –in particular, specific groups such as children, adolescents and youth; women; the elderly; people with disabilities who require special care– in the recovery phase, as well as an idea of the local assistance in terms of health care services, building infrastructure (hospitals and schools), specialized human resources, transportation and communication, for total recovery during this post-crisis phase.</p> |
| Recommended | <p>These are second priority indicators that, in general, contribute to the estimation of changes in population characteristics by level of welfare or vulnerability, or likelihood to suffer certain health conditions –epidemic or endemic–.</p> |
| Desirable | <p>These third-priority indicator may be challenging for the LAC countries in some cases due to the limited availability of data sources on the responsiveness of humanitarian actors. However, they are considered helpful in optimizing the development of the activities required to carry out the recovery process.</p> |

Source: UNFPA (2013).



Diagram 6. Necessary socio-demographic data, indicators by relevance criteria and data sources for collection and analysis during the post-crisis phase in Latin American and Caribbean countries

| Essential Information | Essential Indicators | | | | Source |
|--|--|--|---|---|--|
| | Name | Unit of analysis | Cut-off variables | Level of disaggregation | |
| <ul style="list-style-type: none"> • Number and distribution of housing and households. | <ul style="list-style-type: none"> • Change in Total Housing. • Change in Total Household. | <ul style="list-style-type: none"> • Housing. • Households. | | <ul style="list-style-type: none"> • Administrative unit(s). • Rural area and urban area. • Geo-climatic areas. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Post-crisis census. |
| <ul style="list-style-type: none"> • Size and distribution of households and population. | <ul style="list-style-type: none"> • Change in average household size. • Change in total population size. • Change in total population density. | <ul style="list-style-type: none"> • Households. • Population. | | <ul style="list-style-type: none"> • Administrative unit(s). • Rural area and urban area. • Geo-climatic areas. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Post-crisis census. |
| <ul style="list-style-type: none"> • Population structure by sex and age, and identification of specific population groups. | <ul style="list-style-type: none"> • Changes in sex ratio. • Changes in total number of: women of all ages, women of reproductive age, children, adolescents and youth, senior adults, people with disabilities, female heads of household, child heads of households. | <ul style="list-style-type: none"> • Population. | <ul style="list-style-type: none"> • Sex. • Age. • Head of household. • Disability. | <ul style="list-style-type: none"> • Administrative unit(s). • Rural area and urban area. • Geo-climatic areas. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Post-crisis census. • Post-crisis surveys. • Administrative records. |

Diagram 6. Necessary socio-demographic data, indicators by relevance criteria and data sources for collection and analysis during the post-crisis phase in Latin American and Caribbean countries *(continued)*

| Essential Information | Essential Indicators | | | | Source |
|--|---|---|---|---|---|
| | Name | Unit of analysis | Cut-off variables | Level of disaggregation | |
| <ul style="list-style-type: none"> • Location of basic social infrastructure (education, health, social support). | <p>Health:</p> <ul style="list-style-type: none"> • Number, distance, and accessibility of health services (hospitals, health centres, among others). • Number and type of health service staff (physicians, nurses, midwives, etc.). • Number and location of health facilities available by specific service (maternal and infant care, obstetric care, emergencies, ambulances, etc.). • Ratio of population by healthcare service and healthcare provider. <p>Education:</p> <ul style="list-style-type: none"> • Number of schools and capacity by level (elementary and secondary). • Ratio of boys and girls per school, teacher and educational level. <p>Transportation:</p> <ul style="list-style-type: none"> • Availability of paved roads. • Major means of transportation (mechanical, animal, river, etc.). <p>Other services:</p> <ul style="list-style-type: none"> • Clean water. • Electricity. • Waste water. • Community centres. • Stores, markets, and shopping centres. • Security services. • Support services for victims of violence. • Mobile telephone services. | <ul style="list-style-type: none"> • Hospitals, health centres, and the like. • Health providers. • Schools and others. • Staff in education services. • Children who attend educational services. | <ul style="list-style-type: none"> • Specific health services. • Teaching levels. | <ul style="list-style-type: none"> • Administrative unit(s). • Rural area and urban area. • Geo-climatic areas. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Post-crisis census. • Sector surveys. • Reports by humanitarian agencies. |

Diagram 6. Necessary socio-demographic data, indicators by relevance criteria and data sources for collection and analysis during the post-crisis phase in Latin American and Caribbean countries *(continued)*

| Recommended Information | Recommended Indicators | | | | Source |
|---|--|---|---|---|--|
| | Name | Unit of analysis | Cut-off variables | Level of disaggregation | |
| <ul style="list-style-type: none"> • Number and distribution of housing and households by characteristics. | <ul style="list-style-type: none"> • Total housing units according to their construction materials (floors, walls, and roofs). • Total households, according to sanitary conditions (water supply and source, toilet availability with water discharge into the public sewage network), and by overcrowded conditions. | <ul style="list-style-type: none"> • Housing. • Households. | <ul style="list-style-type: none"> • Construction materials of housing. • Sanitation conditions of households. • Overcrowding of households. | <ul style="list-style-type: none"> • Administrative unit(s). • Rural area and urban area. • Geo-climatic areas. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Post-crisis census. |
| <ul style="list-style-type: none"> • Socio-economic characteristics of the population: schooling, occupation, population rating, economic activity. | <ul style="list-style-type: none"> • Literacy rate. • Population distribution by economic activity sector. • Total school age children. • Schooling rate by sex and level of education. • Access to information and dissemination sources (radio, TV, landline and mobile telephone, etc.). | <ul style="list-style-type: none"> • Population. | <ul style="list-style-type: none"> • Able to read and write. • Highest level of education. • Occupation. • Industry/Sector of economic activity. • Access to radio, TV, mobile and landline phone, among others. | <ul style="list-style-type: none"> • Administrative unit(s). • Rural area and urban area. • Geo-climatic areas. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Post-crisis census. • Sector surveys. |
| <ul style="list-style-type: none"> • Socio-cultural characteristics of the population (indigenous language speakers, religion, ethnic group member). | <ul style="list-style-type: none"> • Changes in the size and distribution of population: <ul style="list-style-type: none"> - By ethnic group. - By place of birth. - By spoken language. - By religious affiliation. | <ul style="list-style-type: none"> • Population. | <ul style="list-style-type: none"> • Ethnic group. • Birthplace. • Spoken language. • Religious affiliation. | <ul style="list-style-type: none"> • Administrative unit(s). • Rural area and urban area. • Geo-climatic areas. • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Post-crisis census. • Household surveys. • Administrative records. |

Diagram 6. Necessary socio-demographic data, indicators by relevance criteria and data sources for collection and analysis during the post-crisis phase in Latin American and Caribbean countries *(continued)*

| Recommended Information | Recommended Indicators | | | | Source |
|---|--|---|--|--|--|
| | Name | Unit of analysis | Cut-off variables | Level of disaggregation | |
| <ul style="list-style-type: none"> • Health issues and priority elements (reproductive health, HIV, mortality, morbidity, epidemics, vaccination coverage, population nutrition level); • population reproductive patterns. | <ul style="list-style-type: none"> • Number of births. • Number of pregnant women. • Number of deaths by age and sex (infants, mothers of specific ages). • Life expectation at birth. • Knowledge of contraceptive methods. • Contraceptive method prevalence rate among adults and youth. • Vaccination coverage. • Nutritional conditions of children and pregnant women. • Common and epidemic diseases. • Number/ frequency of children deaths due to diarrhoea. • Knowledge of HIV/AIDS. • Prevalence of HIV/AIDS. • Prevalence of other sexually transmitted diseases. • Frequency of violence by type. • Number of female victims of violence (sexual, psychological, etc.) by type of aggressor. | <ul style="list-style-type: none"> • Total population. • Female population. • Population under 18. | <ul style="list-style-type: none"> • Sex. • Age. • Nutritional status. • Vaccination status. • Health status. • Knowledge and use of contraceptive methods. • Pregnancy status. | <ul style="list-style-type: none"> • Administrative unit(s). • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Post-crisis census. • Post-crisis surveys. • Administrative records. |
| <ul style="list-style-type: none"> • Well-being, income level and vulnerability. | <ul style="list-style-type: none"> • Change in ratio of population under the poverty line by sex and age. • Change in ratio of population with access to potable water and electricity. | <ul style="list-style-type: none"> • Population. | <ul style="list-style-type: none"> • Poverty. • Access to potable water and electricity. | <ul style="list-style-type: none"> • Administrative unit(s). • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Post-crisis census. • Post-crisis surveys. |

Diagram 6. Necessary socio-demographic data, indicators by relevance criteria and data sources for collection and analysis during the post-crisis phase in Latin American and Caribbean countries *(continued)*

| Desirable Information | Desirable Indicators | | | | Source |
|---|--|--|---|--|--|
| | Name | Unit of analysis | Cut-off variables | Level of disaggregation | |
| <ul style="list-style-type: none"> • Responsiveness (of governments, NGOs, UN agencies, etc.) in potentially affected areas. | <ul style="list-style-type: none"> • Number of NGOs and other concerned humanitarian actors with the capacity to work in humanitarian situations for: <ul style="list-style-type: none"> - Logistics and transportation. - Human and material resource provision. - Storage capacity. - Communications facilities. | <ul style="list-style-type: none"> • Humanitarian actors. | <ul style="list-style-type: none"> • Capacity: <ul style="list-style-type: none"> - Logistics. - Transportation. - Provision of human resources. - Provision of material resources. - Storage (stock). • Communications facilities. | <ul style="list-style-type: none"> • Administrative unit(s). • Geo-referenced information (GIS). | <ul style="list-style-type: none"> • Country risk management team (COEs, Civil Defence, etc.). • OCHA, UN System, Country Humanitarian Aid Coordinator. • Administrative records. |

Source: Prepared based on UNFPA (2010:81:82).



For more information on the development of each basic indicator in Diagram 6, see breakdown in: *Operational tools of the Guidelines (Annex I)*.

Diagram 7. Example of basic assessment of changes during the post-crisis phase in Latin America and the Caribbean

| Essential indicators in Diagram 1: preparedness | Essential indicators in Diagram 6: post-crisis | Assessment of change in percentages against initial situation obtained from Diagram 1 | Analysis and conclusions |
|---|--|--|--|
| <ul style="list-style-type: none"> • Total housing 1. • Total households 1. | <ul style="list-style-type: none"> • Total housing 6. • Total household 6. | <ul style="list-style-type: none"> • $(\text{Total housing 1} - \text{Total housing 6}) / \text{Total housing 1} \times 100$. • $(\text{Total housing 1} - \text{Total household 6}) / \text{Total housing 1} \times 100$. | <ul style="list-style-type: none"> • Negative values lead to the conclusion that the recovery process must be revived. • Positive values lead to the conclusion that the recovery process is underway. |
| <ul style="list-style-type: none"> • Size of total population 1. | <ul style="list-style-type: none"> • Size of total population 6. | <ul style="list-style-type: none"> • $(\text{Total population 1} - \text{Total population 6}) / \text{Total population 1} \times 100$. | <ul style="list-style-type: none"> • Negative lead to the conclusion that the recovery process must be revived. • Positive values lead to the conclusion that the recovery process is underway. |

Source: UNFPA (2013).

• How to evaluate the changes during the transition towards recovery?

As mentioned, initial data collection and analysis during the post-crisis phase seeks to obtain results that may be contrasted against those obtained prior to the occurrence of a disaster, i.e., trying to compare the values of each indicator finally selected from Diagram 6 for the post-crisis phase against those of Diagram 1 during the preparedness phase. A proposed analysis is suggested in Diagram 7.

5.2.2. Data sources in the post-crisis phase

The main data sources for the collection and analysis of information during this phase are:

- Sector-specific surveys.
- Household sample surveys.
- Post-crisis census.

5.2.2.1. Sector-specific surveys

These are tools for the collection of information on specific issues, whose results are useful for the design of programmes that need initiation or reactivation. In general, these are surveys about health-disease processes, sexual and reproductive health, nutrition, living conditions and well-being. This data source was already suggested for data collection during the preparedness stage. Strengths and limitations are detailed in Chart 9.

5.2.2.2. Sample Household Surveys

If research is required on a set of socio-economic and socio-demographic aspects, the use of sample household surveys is recommended. Advantages and limitations have been previously addressed in Chart 9.

Chart 18. Criteria for a post-crisis census survey

| Recommended | Not recommended |
|---|---|
| When social stability and politics do not interfere in the collection of data. | When social and political stability has not been achieved after a disaster. The population continues to live outside its usual places of residence. |
| If population projection assumptions about the affected area become plausible. | If there are potential risks to the life and security of the field staff. |
| If the prolongation of the crisis only affects a small portion of the national territory. | When the conditions for the collection of data are precarious and there is no guarantee that quality information can be obtained to compensate for the cost incurred. |

Source: UNFPA (2010:75).



A basic questionnaire to conduct a post-crisis census is suggested in: *Operational tools of the Guidelines (Annex IV)*.

5.2.2.3. Rapid Census for Post-Crisis Assessment

Please refer to Chart 8 for a description of the main characteristics, strengths and limitations of censuses.

In particular, population censuses are essential components during the post-crisis and post-disaster phase for recovery planning. However, depending on the characteristics of the recovery process, post-crisis censuses may or may not be recommended. A synthesis of the criteria used whether to recommend the implementation of a post-crisis census is presented in Chart 18.

The information obtained from the post-crisis census is an updated count of the number, structure and location of the population residing in a territory or targeted sub-populations, and may be used to obtain part of the indicators summarized in Diagram 6.

In this recovery phase, when we begin to collect critical information, the implementation of the

census could provide valuable information that may be compared against prior results, in order to inform ongoing recovery efforts.

5.3. Operational Aspects

It is recommended that specialists, professionals, and technicians of the National Statistics Institutes (NSI) and sectoral agencies, as well as local agency offices implement these actions and collect the reference information. NSIs could provide the technical skills required to develop and implement both surveys and censuses. Similarly, sectoral agencies, particularly in the health sector, would have the technical and professional skilled human resources to support the conceptual design of sector-specific surveys.

In all cases, it is recommended that national counterparts drive the effort to initiate data collection and analysis processes at the reconstruction stage, with the support of the United Nations system in the country and the interna-

tional humanitarian cooperation, led by the Resident Coordinator/Humanitarian Coordinator.

Again, and as mentioned for data compilation and analysis in the preparedness, acute and chronic phases, since the task implies the maintenance of various government agency databases, it is essential to ensure an articulated coordination of efforts by one responsible national agency capable of assuming this role. The aim is to produce the information required and ensure its efficient use by means of coordinated data management. In this case, it is recommended to strengthen the adequacy of country Humanitarian Network Protocols in order to ar-

ticulate and coordinate efforts between national agencies and between these and international organizations towards total recovery.

5.4. Lessons learned by Latin American and Caribbean Countries about data collection and analysis in the post-crisis phase

The post-crisis period is the moment to evaluate the humanitarian support, in order to measure the impact of the interventions and also derive lessons learned from that effort.

Example 16. Primary needs of the population and response actions in post-disaster recovery, Ecuador

The Methodological Guide for Post-disaster Recovery Planning Processes, published by the UNDP Office in Ecuador in 2011, provides a synthesized vision of the major needs of the population and the response actions that are activated in humanitarian crises.

Response organizations will initially direct their efforts to account for the victims (establish losses and damage), rescue efforts, caring for the injured, and providing for the basic food, water, shelter, and health needs of the affected people. The situation will gradually evolve towards facilitating the access and mobility of individuals, ensuring that the buildings still standing are liveable, removing debris, recovering the means of livelihood of the population, and ensuring the country's ability to govern itself and its sovereignty.

Source: UNDP (2011:12).

Example 17. Lessons learned from the management of information during the 2010 emergency in Chile, 2010

"The February 27 emergency showed how daily challenges may become significant obstacles when the situation requires assertive and prompt responses".

Regarding the management of information, a fundamental issue was the lack of protocols and/or the means to record emergency situations, both to collect information on the damages, as well as to establish the health needs of the population and epidemiological surveillance.

"The multiplicity of efforts to collect information without common parameters and nomenclature resulted in a lack of precise information that needed to be processed in order to ensure the desired impact of the measures to be adopted".

The report indicates that: "Over time, we have been able to overcome the difficulties in the production and systematic organization of the information; however, eight months after the earthquake and tsunami, there was still a need to develop consolidated reports on the damages, the response, and the progress of the recovery".

"The lessons learned point to the need to have rapid assessment teams, and the existence of protocols for the preparation of situation reports on the basis of regular data collection and recording".

Source: OPS/OMS (2010).

Example 18. The case of flooding in the province of Santa Fe, Argentina, 2003

The catastrophe caused by the unusual rise of the level of the Salado river in Santa Fe in the fall of 2003, affected a third of the population (approximately 150,000 inhabitants), and resulted in millions in losses. It also showed that a Contingency Plan did not exist to allow for an orderly evacuation of the population prior to and during the disaster. Within this context, a proposal is being submitted to efficiently face similar situations that may arise in the future, for application during the reconstruction stage.

The objective of the work consists of structuring a GIS on subjects with attribute tables containing information on the physical conditions in the area and the socio-economic characteristics of the population, information on the equipment and infrastructures available to manage hydrological emergencies (hospitals, schools, clubs, churches, police and military stations, firemen, places assigned as evacuation centres, warehouses, etc.), as well as supply networks and access to the city, roads, and evacuation instructions, and an identification of urban areas that are prone to flooding.

The materials and software used include:

- **Mapping:** Urban and thematic drawings on a scale compatible to the coverage of the study.
- **Satellite Images:** Sport and Landsat for various dates, prior to and after a hydrological disaster.
- **Aerial Photographs:** 1: 5000 scale of the affected zone.
- **Other:** Telephone directories, censuses of social service facilities (schools, churches, clubs, police stations, neighbourhood facilities, hospitals, fire stations, civil assistance, etc.).
- **Software:** ArcView3.2 + extensions.

With regard to the work methodology, it consists of four stages:

- Conceptualization.
- Collection and search for existing information.
- Collection and integration of information.
- Generation of new information.

The results obtained point to the fact that –upon entering, reconciling, and correcting the information already in the GIS–, some analysis have been initiated by superimposing and extracting information between layers that allow for observation of the urban layout of the city, as well the areas of each neighbourhood and of the zone affected by the flooding of the Rio Salado river in April 2003.

Source: Graciela Pucineri (n.d.).



Recommendations



The following recommendations seek to improve and overcome potential challenges for data collection and analysis during the various stages of an emergency in LAC countries:

Preparedness, chronic, and post-crisis phases

RECOMMENDATION 1

| | |
|-----------------------|--|
| Issue | No Early Warning System (EWS), or similar, in place. |
| Challenge | Develop an EWS, or similar, ASAP. |
| Recommendation | <p>Revive the need to incorporate the construction of an EWS, or similar, as a strategic line in the annual work plan of each humanitarian actor in the country: national and local public agencies, private organizations, NGOs, international and regional organizations, including UNFPA.</p> <p>UNFPA could:</p> <ul style="list-style-type: none">• Persuade national and local decision makers to promote preventive, anticipatory thinking and invest enough resources to develop an EWS in the shortest amount of time possible.• Convene national and local public agencies, private organizations, and NGOs, to form an Executive Committee in charge of coordinating the development of an EWS within the amount of time possible.• Promote capacity development of NSIs and national sectoral agencies by recommending that their permanent activities include a database management function for disaster risk management*, being the indicators provided in these <i>Guidelines</i> its minimal structure.• The local office of the UNFPA could sponsor and/or organize workshops to reinforce the idea of the key role of data collection and analysis for humanitarian situations during the preparedness phase. Similarly, UNFPA may contribute by developing capacities, managing and sharing knowledge , providing technical assistance or technical support, or by promoting South-South cooperation between countries, among others, thus helping NSIs and national sectoral agencies to have professionals and technicians with the skills to develop such activity permanently. |

RECOMMENDATION 2

| | |
|-----------------------|--|
| Issue | An Early Warning System (EWS) has been prepared, but has not been updated. |
| Challenge | To update the information in the EWS within the shortest amount of time possible. |
| Recommendation | <p>Revitalize the need to include the updating of the EWS information, or similar, as a strategic line in the work plan of each humanitarian actor in the country: national and local public agencies, private organizations, NGOs, international and regional organizations, including UNFPA.</p> <p>UNFPA could:</p> <ul style="list-style-type: none">• Advocate with national and local decision makers to promote preventive, anticipatory thinking and invest enough resources to update the information in the EWS.• Convene national and local public agencies, private organizations, and NGOs, to advance the establishment and operation of an Executive Committee, or similar, in charge of coordinating the updating of the EWS within the shortest amount of time possible.• Promote that the permanent activities of NSIs and national sectoral agencies include forecasting and ensure the continuous updating of EWS information. |

RECOMMENDATION 3

| | |
|-----------------------|--|
| Issue | There is an EWS in place and updated, but indicators are inadequate for the provision of the information required in humanitarian crises. |
| Challenge | To build an EWS containing adequate indicators to respond to a humanitarian crises in proper and timely manner. |
| Recommendation | The local office of UNFPA could sponsor and/or organize workshops to promote the collection of the required statistical information for use in humanitarian crisis situations, as suggested in Diagram 1 and its breakdown in Annex 1, <i>Operational tools of the Guidelines</i> , by prioritizing the collection and analysis of the information as recommended for the classification of indicators into essential (first priority), recommended (second priority), and desirable (third priority). |

RECOMMENDATION 4

| | |
|-----------------------|---|
| Issue | There are no data sources that include the essential questions required during a humanitarian crisis. |
| Challenge | Having data sources in the country that may provide the required statistical information in humanitarian crises, within the shortest amount of time possible. |
| Recommendation | UNFPA could advocate with national and local decision makers about the relevance of promoting preventive, anticipatory thinking and investing enough resources to include questions on risk management with a gender approach in ordinary data collection tools including censuses, surveys and administrative records. |

RECOMMENDATION 5

| | |
|-----------------------|---|
| Issue | Little or no data harmonization; and/or inconsistency. |
| Challenge | Harmonize and/or standardize information from various data sources. |
| Recommendation | <p>The local office of UNFPA could sponsor and/or organize workshops to promote the standardization of the required statistical information. To this end, it is suggested to identify key stakeholders in each country, and prepare a joint work agenda that includes sharing databases and methodologies for their creation and analysis.</p> <p>Similarly, UNFPA may contribute to capacity development, knowledge management and sharing; it may provide technical assistance or technical support, promote South-South cooperation between the countries, among other activities.</p> |

RECOMMENDATION 6

| | |
|-----------------------|--|
| Issue | It is difficult to obtain quality and timely data. |
| Challenge | Obtain quality and timely statistical data. |
| Recommendation | <p>The local office of UNFPA could sponsor and/or organize workshops to promote quality evaluation of the statistical information produced by the various national and local public agencies, required to assist with the humanitarian processes.</p> <p>Similarly, UNFPA may contribute to capacity development, knowledge and management and sharing; it may provide technical assistance or technical support, promote South-South cooperation between the countries, among other activities, to ensure the production of quality data to be used in crisis situations.</p> |

RECOMMENDATION 7

| | |
|-----------------------|---|
| Issue | There are coordination challenges between national/local public agencies, and/or between national/local authorities and humanitarian actors. |
| Challenge | To coordinate efforts between representatives of national/local public agencies, as well as between national/local public agencies and humanitarian NGOs/regional and international stakeholders, including UNFPA representatives. This includes preventing the duplication of efforts and ensuring that the data collected by each particular national or local organization is compatible and complementary. |
| Recommendation | <p>UNFPA could:</p> <ul style="list-style-type: none">• Advocate with national and local decision makers to integrate coordination actions between the various public and/or private organizations in all the phases of an emergency (preparedness, acute, chronic, and post-crisis).• Convene national and local public agencies, private organizations and NGOs, to establish a joint work agenda. It is suggested that key stakeholders be identified for each phase of the emergency in each country, and that a joint liaison agenda be prepared to establish both the specific activities to be developed, as well as the institutional responsibilities to address them in order to define and refine inter-agency coordination mechanisms. |

RECOMMENDATION 8

| | |
|-----------------------|---|
| Issue | There is a lack of skilled personnel and a plan for the ongoing data collection and analysis in national/local public agencies and/or the NGOs, which delays the response to a humanitarian crisis. |
| Challenge | Have the minimum technical and professional personnel required to manage databases, collect and analyse the statistical information in each of the four emergency phases (preparedness, acute, chronic, and post-crisis). |
| Recommendation | <p>Encourage the recruitment of skilled technical and professional personnel by national/local public agencies and/or NGOs, as well as a plan for their continuous training.</p> <p>The local office of the UNFPA could sponsor and/or organize workshops that promote awareness-raising about the need to specialize work teams by expanding the scope of, and search for, more strategic lines of action and collaboration by training the human resources of national/local public agencies and/or NGOs so that they may contribute to train a minimum number of technicians and professionals required for database management, and statistical information collection and analysis in the four emergency phases (preparedness, acute, chronic, and post-crisis).</p> <p>It is necessary to reinforce training for data collection skills. To this end, it is recommended that a training schedule be prepared for an adequate use of these <i>Guidelines</i>, with at least one annual workshop for the usual producers and/or users of data in each (local and international) humanitarian organization, given by a specialist in socio-demographic data collection and analysis tools.</p> |

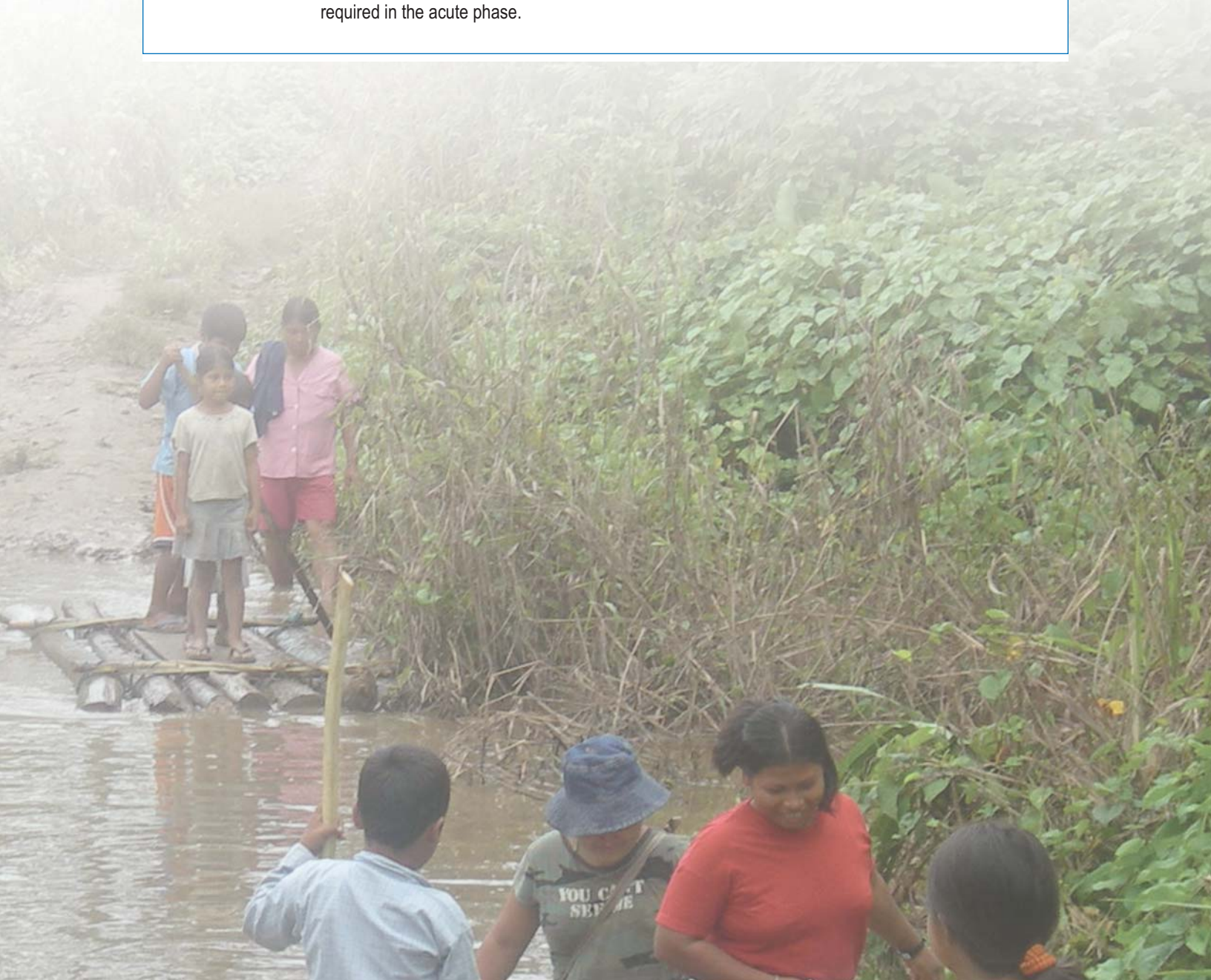
RECOMMENDATION 9

| | |
|-----------------------|--|
| Issue | High turnover rates among the personnel in charge of compiling and analysing statistical information in national/local public agencies, which has a negative impact on the creation of the capacities required to generate data in humanitarian crises. |
| Challenge | To ensure the continuance of the staff in charge of collecting and analysing statistical information at national and local public agencies. |
| Recommendation | Advocate with national and local decision-makers about the importance of ensuring the continuance of trained human resources in charge of statistical information collection and analysis, by applying an investment approach rather than an expense approach. |

Acute phase

RECOMMENDATION 10

| | |
|-----------------------|--|
| Issue | There is no Early Warning System developed, and it is physically impossible to access the zones affected by the disaster. |
| Challenge | To collect and analyse statistical information on the affected zone to direct the assistance to their populations. |
| Recommendation | <p>Apply an indirect mode of collecting and analysing statistical information on the areas affected by a disaster within the shortest amount of time possible.</p> <p>Promote the joint work of national/local public agencies and/or private organizations by coordinating the efforts performed by their representatives in order to obtain minimum and basic statistics on the areas affected by a disaster and their socio-demographic characteristics, following the suggestions made in these <i>Guidelines</i>.</p> <p>The local office of UNFPA could support and coordinate the joint work of national and local public agencies and/or private organizations that may enable the collection and analysis of statistical information required in the acute phase.</p> |





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Abbreviations

| | |
|--------------------|--|
| CAEWS | Central American Early Warning System |
| CATHALAC | Water Center for the Humid Tropics of Latin America and The Caribbean |
| CELADE | Latin American and Caribbean Demographic Centre |
| CENAPRED | Mexico's National Center for Prevention of Disasters |
| CEPREDENAC | Coordination Center for Disaster Prevention in Central America |
| CRID | Regional Disaster Information Center Latin America and the Caribbean |
| DESINVENTAR | Inventory System of the Effects of Disasters |
| DIPECHO | European Commission Humanitarian Aid and Civil Protection Disaster Preparedness Department |
| ECHO | European Community Humanitarian Aid and Civil Protection |
| EOC | Emergency Operations Center |
| EWS | Early Warning System |
| FAO | Food and Agriculture Organization of the United Nations |
| GIS | Geographic Information Systems |
| GPIP | Group of Primary Information Providers |
| HIV/AIDS | Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome |
| IASC | Inter-Agency Standing Committee |
| ICPD | International Conference on Population and Development |
| IDP | Internationally Displaced Persons |
| IFRC | International Federation of Red Cross and Red Crescent Societies |
| IOM | International Organization for Migration |
| LAC | Latin America and the Caribbean |
| LACRO | Latin America and the Caribbean Regional Office-UNFPA |

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|-------------------|---|
| MIRA | Multi-cluster/Sector Initial Rapid Assessment |
| NGO | Non-Governmental Organization |
| NSI | National Statistics Institute |
| OCHA | Office for the Coordination of Humanitarian Affairs |
| OHCHR | Office of the High Commissioner for Human Rights |
| OXFAM | Oxford Committee for Famine Relief |
| PAHO | Pan American Health Organization |
| PDA | Personal Digital Assistant |
| REDHUM | Regional Humanitarian Information Network for Latin America and the Caribbean |
| REDLAC | Risk, Emergency and Disaster Task Force for Latin America and the Caribbean |
| SitReps | Situation Reports |
| UNAIDS | Joint United Nations Programme on HIV/AIDS |
| UNDMT | United Nations Disaster Management Team |
| UNDP | United Nations Development Programme |
| UNDSS | United Nations Department of Safety and Security |
| UNECLAC | The United Nations Economic Commission for Latin America and the Caribbean |
| UNEP | United Nations Environmental Programme |
| UNETT | United Nations Emergency Technical Team |
| UNFPA | United Nations Population Fund |
| UN-Habitat | United Nations Agency for Human Settlements |
| UNHCR | The United Nations High Commissioner for Refugees |
| UNICEF | United Nations Children’s Fund |
| UNISDR | The United Nations Office for Disaster Risk Reduction |
| UN System | United Nations System |
| USAID-OFDA | United States Agency for International Development-Office for Foreign Disaster Assistance |
| WFP | World Food Programme |



Glossary of Terms

Accessibility. Refers to the ease with which users may obtain statistical data.

Source: <http://www.cepal.org/publicaciones/xml/2/45612/manuales74.pdf> (p. 12).

Accuracy. This refers to the difference between the estimated value and the actual (unknown) value. The accuracy of the data or statistical information is the extent to which data is estimated and correctly describes the numbers or characteristics that the statistical activity attempts to measure.

Source: <http://www.cepal.org/publicaciones/xml/2/45612/manuales74.pdf> (p.12).

Affected in disasters. These are persons and/or families that sustain various degrees of damage or harm to their property and services (water, electricity, housing, food, access to means of communication), in view of the occurrence of a threat (natural or not), the recovery of which may be advanced by a person in a short time and with a moderate or no government aid.

Baseline. An interpretive tool comprised of statistics against which you can compare indicators from your selected population that are from a different period of time, a different place or a different population. Baseline data often describes a situation that existed before an event (a natural or socio-natural hazard). A dataset can be compared against the baseline data to see how the situation under analysis appears weighed against the situation as measured before to the event. For baseline data, indicators prior to the onset of the distress situation are preferred, although a value for the entire region or country may also be used.

Source: Inter-Agency Standing Committee-IASC (2012:40-41). *Operational guidelines for coordinated assessments in humanitarian crises*. Available online: www.humanitarianinfo.org/iasc/downloaddoc.aspx?docID=6262.

Biological hazard. Process or phenomenon of organic origin or conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Examples of biological hazards include outbreaks of epidemic diseases, plant or animal contagion, insect or other animal plagues and infestations.

Source: UNISDR (2009:04-05). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Clarity. The degree to which statistics are understandable for non-specialist users.

Source: <http://www.cepal.org/publicaciones/xml/2/45612/manuales74.pdf> (p.12).

Climate change

- The Inter-governmental Panel on Climate Change (IPCC) defines climate change as: “a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forces, or to persistent anthropogenic changes in the composition of the atmosphere or in land use”.

- The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods”.

Comment: For disaster risk reduction purposes, either of these definitions may be suitable, depending on the particular context. The UNFCCC definition is the more restricted one as it excludes climate changes attributable to natural causes. The IPCC definition can be paraphrased for popular communications as “A change in the climate that persists for decades or longer, arising from either natural causes or human activity”.

Source: UNISDR (2009:06-07). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Consistency. The extent to which the data in a given statistical programme and those resulting from the grouping of different programmes are logically connected.

Source: <http://www.cepal.org/publicaciones/xml/2/45612/manuales74.pdf> (p.12).

Comparability. The extent to which statistics are spatially comparable (between countries or internally, between a country’s various political and administrative divisions) and over time.

Contingency planning. A management process that analyses specific potential events or emerging situations that might threaten society or the environment and establishes arrangements in advance to enable timely, effective and appropriate responses to such events and situations.

Comment: Contingency planning results in organized and coordinated courses of action with clearly-identified institutional roles and resources, information processes, and operational arrangements for specific actors at times of need. Based on scenarios of possible emergency conditions or disaster events, it allows key actors

to envision, anticipate and solve problems that may arise during crises. Contingency planning is an important part of overall preparedness. Contingency Plans need to be regularly updated and exercised.

Source: UNISDR (2009:07-08). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Disaster. A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Comment: Disasters are often described as a result of the combination of: the exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity or measures to reduce or cope with the potential negative consequences. Disaster impacts may include loss of life, injury, disease and other negative effects on human physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation.

Source: UNISDR (2009:9). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Disaster Risk. The probability of a disaster occurrence due to the spatial and temporal concurrence of a natural, social, or technological hazard and a human group vulnerable to its impact. It is expressed as Disaster Risk = natural hazard x Vulnerability.

Disaster risk management. The systematic process of using administrative directives, organizations, skills, and operational capacities to implement policies and strengthen the capacities to handle disasters, for the purpose of reducing the adverse impact of natural threats and the possibility that a disaster may occur.

Comment: This term expands on the more general concept of “risk management”, in order to address the specific theme of disaster risk. Disaster risk management seeks to prevent, decrease, or transfer the adverse effects of threats by means of various activities and prevention measures, mitigation, and preparedness.

Source: UNISDR (2009:10). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Disaster victim. A person or family that has sustained serious harm to its health or property, mainly to homes, which may be totally or partially, or permanently or temporarily unliveable; therefore they must be provided with shelter and humanitarian assistance while a definitive place of residence is found.

Early Warning System (EWS)

- The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.
- An information system organized around a set of tasks to warn a population or community exposed to an imminent danger. It provides adequate, precise, and effective information on how it manifests itself, for the purpose that operating emergency agencies activate pre-established procedures for action, and the population takes specific precautions to prevent or reduce such risk. It consists of 4 subsystems: i) measurement and monitoring of hazards; ii) knowledge of the risks; iii) preparedness and responsiveness; and iv) dissemination and communication.

Comment: This definition encompasses the range of factors necessary to achieve effective responses to warnings. A people-centred Early Warning System necessarily comprises four key elements: knowledge of the risks; monitoring, analysis and forecasting of the hazards; communication or dissemination of alerts and warnings; and local capabilities to respond to the warnings received. The expression “end-to-end warning system” is also used to emphasize that warning systems need to span all steps from hazard detection through to community response.

Source: UNISDR (2009:12). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

El Niño (La Niña) Southern Oscillation phenomenon. A complex interaction of the tropical Pacific Ocean and the global atmosphere that results in irregularly occurring episodes of changed ocean and weather patterns in many parts of the world, often with significant impacts over many months, such as altered marine habitats, rainfall changes, floods, droughts, and changes in storm patterns.

Comment: The El Niño part of the El Niño-Southern Oscillation (ENSO) phenomenon refers to the well-above-average ocean temperatures that occur along the coasts of Ecuador, Peru and northern Chile and across the eastern equatorial Pacific Ocean, while La Niña part refers to the opposite circumstances when well-below-average ocean temperatures occur. The Southern Oscillation refers to the accompanying changes in the global air pressure patterns that are associated with the changed weather patterns experienced in different parts of the world.

ENSO is defined by CIIFEN-International Research Center of the Phenomenon of El Niño as an ocean-atmospheric phenomenon that consists of the interaction of the cooling and the abnormal warming of the tropical Pacific Ocean surfaces with the surrounding atmosphere. ENSO consists of two major ocean phenomena: the atypical warming of the tropical waters of the Pacific ocean, popularly called the El Niño phenomenon, and the atypical cooling of the same waters, a phenomenon known as la Niña.

Source: UNISDR (2009:13). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Emergency. A situation associated with an occurrence, or an impending dangerous physical phenomenon that requires immediate response and care, including means of communication, by government agencies and the community in general. When the situation is imminent there may be confusion,

disorder, uncertainty and disorientation among the population. Once the impact happens, there is a severe alteration in the functionality of a community or region.

Exhaustiveness. The extent to which statistics fully cover the phenomenon they are attempting to describe.

Source: <http://www.cepal.org/publicaciones/xml/2/45612/manuales74.pdf> (p.12).

Gender-Based Violence (GBV). Acts of violence against one or more individuals in a household or community, derived from socio-cultural mandates that differentiate roles, duties, and privilege of men and women. In disaster situations, women, girls, and boys are particularly exposed to various forms of violence. The 1994 Belem do Para Convention defines violence against women as “the gender-based act or behaviour women suffer, which causes death or physical, sexual, or psychological damage, both in the public as well as in the private sphere” (OAS, 1994).

Geological hazard. Geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Geological hazards include internal earth processes, such as earthquakes, volcanic activity and emissions, and related geophysical processes such as mass movements, landslides, rockslides, surface collapses, and debris or mud flows. Hydro-meteorological factors are important contributors to some of these processes. Tsunamis are difficult to categorize; although they are triggered by undersea earthquakes and other geological events, they are essentially an oceanic process that is manifested as a coastal water-related hazard.

Source: UNISDR (2009:16-17). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Harmonization of statistics. This refers to the activities developed and coordinated by the countries in the Latin American and

Caribbean region (LAC) whose aim is to establish a common framework under international standards to ensure the compatibility and exchange of data and information. In the LAC region, INAES is a Work Group Strengthening Project of the Statistical Conference of the Americas (SCA-ECLAC), which is part of the ECLAC Work Programme for 2005-2015.

For more information, please see: ECLAC (2007), or the SCA-ECLAC website: <http://websie.eclac.cl/SA/actividades.asp>.

Hazard. A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: The hazards of concern to disaster risk reduction as stated in footnote 3 of the Hyogo Framework are “...hazards of natural origin and related environmental and technological hazards and risks”. Such hazards arise from a variety of geological, meteorological, hydrological, oceanic, biological, and technological sources, sometimes acting in combination. In technical settings, hazards are described quantitatively by the likely frequency of occurrence of different intensities for different areas, as determined from historical data or scientific analysis.

See other hazard-related terms in the Terminology: Biological hazard; Geological hazard; Hydro-meteorological hazard; Natural hazard; Socio-natural hazard; Technological hazard.

Source: UNISDR (2009:17-18). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Human rights approach. This is a conceptual framework that is fully integrated with the development domain. It maintains that all people, whatever their age, sex, ethnicity, socio-economic condition, or any other condition, are rights holders (ECLAC-UNICEF, 2012). In this sense, being a rights holder (ECLAC-UNICEF, 2012) mandates that the government take action to ensure that people exercise their rights effectively.

How does it differ from the traditional approach? In that “people have the right to claim certain benefits and behaviours [...] human rights demand obligations and obligations require mechanisms to make them enforceable and fulfil them” (Abramovich, 2006:36). Thus, the juridical evolution of the human rights framework has been protecting various population groups, but in crisis situations they exhibit a heightened vulnerability. The experience with large disasters throughout the world has highlighted the need to take into account situations that affect the rights of people in the midst of a crisis, to the degree that the longer a displacement or shelter situation persists, the greater is the risk of a violation of human rights. These situations may be controlled until they are prevented if humanitarian actors take into account from the beginning that human rights must be guaranteed. (IASC).

Humanitarian actions. A set of activities for the purpose of saving lives, relieve human suffering, and maintain the dignity of persons during and after crises due to social conflicts or disasters. For them to be more efficient and effective, it is necessary to strengthen response planning activities, that is, invest in preparedness.

Humanitarian stakeholders. These are the various institutions and groups that collaborate with various capacities and mandates when a response is activated. The first relevant actor to respond to a crisis situation created by an emergency is the affected community itself. REDLAC (2014) “Directory of Resources and Organizations” provides information on such organizations, i.e., the United Nations System, International Organizations and NGOs, donors, and sub-regional organizations.

Hydro-meteorological hazard. Process or phenomenon of atmospheric, hydrological or oceanographic nature that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and serv-

ices, social and economic disruption, or environmental damage.

Comment: Hydro-meteorological hazards include tropical cyclones (also known as typhoons and hurricanes), thunderstorms, hailstorms, tornados, blizzards, heavy snowfall, avalanches, coastal storm surges, floods including flash floods, drought, heatwaves and cold spells. Hydro-meteorological conditions also can be a factor in other hazards such as landslides, wild fires, locust plagues, epidemics, and in the transport and dispersal of toxic substances and volcanic eruption material.

Source: UNISDR (2009:18). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Indicators. Although there is no single definition, an indicator may be called a tool built with a set of numerical values, or ordinal or nominal categories that synthesize important aspects of a phenomenon for analytical purposes. We can say, then, that social indicators are analytical tools that enhance the knowledge of various aspects of our social life, or with regard to the changes that are occurring. Thanks to the information they provide, social indicators help to respond to social issues and make decisions on public policies supported by empirical evidence.

Source: Simone Cecchini (2005:11). *Social indicators in Latin America and the Caribbean*. ECLAC, Santiago de Chile. Available online: <http://www.eclac.cl/publicaciones/xml/0/23000/lcl2383e.pdf>.

Mitigation. The lessening or limitation of the adverse impacts of hazards and related disasters.

Comment: The adverse impacts of hazards often cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions. Mitigation measures encompass engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness. It should be noted that in climate change policy, “mitigation” is defined differently, being the term used for the reduction of greenhouse gas emissions that are the source of climate change.

Source: UNISDR (2009:19). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Natural hazard. Natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Natural hazards are a sub-set of all hazards. The term is used to describe actual hazard events as well as the latent hazard conditions that may give rise to future events. Natural hazard events can be characterized by their magnitude or intensity, speed of onset, duration, and area of extent. For example, earthquakes have short durations and usually affect a relatively small region, whereas droughts are slow to develop and fade away and often affect large regions. In some cases hazards may be coupled, as in the flood caused by a hurricane or the tsunami that is created by an earthquake.

Source: UNISDR (2009:20-21). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Preparedness. The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.

Comment: Preparedness action is carried out within the context of disaster risk management and aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response through to sustained recovery. Preparedness is based on a sound analysis of disaster risks and good linkages with Early Warning Systems, and includes such activities as contingency planning, stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation and public information, and associated training and field exercises. These must be supported by formal institutional, legal and budgetary capacities. The related term “readiness” describes the ability to quickly and appropriately respond when required.

Source: UNISDR (2009:21). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Prevention . Prevention (i.e. disaster prevention) expresses the concept and intention to com-

pletely avoid potential adverse impacts through action taken in advance. Examples include dams or embankments that eliminate flood risks, land-use regulations that do not permit any settlement in high risk zones, and seismic engineering designs that ensure the survival and function of a critical building in any likely earthquake. Very often the complete avoidance of losses is not feasible and the task transforms to that of mitigation. Partly for this reason, the terms prevention and mitigation are sometimes used interchangeably in casual use.

Source: UNISDR (2009:22). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Primary data. For the purposes of the Multi Sector Initial Rapid Assessment (MIRA), primary data is in-crisis data collected by the MIRA assessment team in the field or by others using the same instrument. Primary data is collected through first-hand experience, using questionnaires, checklists, observations, interviews, or other methods that involve a direct contact with the respondents. All other data sources that feed into the MIRA Report are considered secondary and can be divided between pre- and in-crisis sources.

Source: Multi-Cluster/Sector Initial Rapid Assessment (MIRA), *Provisional version, March 2012. Note 1.* Available online: https://docs.unocha.org/sites/dms/CAP/mira_final_version2012.pdf.

Punctuality. To what extent a previously announced submission deadline is met.

Source: <http://www.cepal.org/publicaciones/xml/2/45612/manuales74.pdf> (p. 12).

Qualitative Data. Observations that are categorical instead of numerical; they often involve attitudes, perceptions and intentions.

Source: Inter-Agency Standing Committee-IASC (2012: 49). *Operational guidelines for coordinated assessments in humanitarian crises.* Available online: www.humanitarianinfo.org/iasc/downloaddoc.aspx?docID=6262.

Quantitative Data. Numerical observations.

Source: Inter-Agency Standing Committee-IASC (2012: 49). *Operational guidelines for coordinated assessments in humanitarian crises*. Available online: www.humanitarianinfo.org/iasc/downloaddoc.aspx?docID=6262.

Reconstruction. It is the medium and long term recovery period from a physical, social, and economic harm, at an equal or higher development level than the one existing prior to the disaster. The effects of a disaster have social, economic and environmental consequences. Therefore, reconstruction actions seek to activate sources of employment, reactivate economic activity, and repair damages, especially to housing and infrastructures.

Source: UNISDR (2009:26). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Recovery. The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

Comment: The recovery task of rehabilitation and reconstruction begins soon after the emergency phase has ended, and should be based on pre-existing strategies and policies that facilitate clear institutional responsibilities for recovery action and enable public participation. Recovery programmes, coupled with the heightened public awareness and engagement after a disaster, afford a valuable opportunity to develop and implement disaster risk reduction measures and to apply the “build back better” principle.

Source: UNISDR (2009:23). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Relevance. The extent to which statistics respond to the needs of users, which points to the need to avoid irrelevant data.

Source: <http://www.cepal.org/publicaciones/xml/2/4561>.

Risk management. The systematic approach and practice of managing uncertainty to minimize potential harm and loss.

Comment: Risk management comprises risk assessment and analysis, and the implementation of strategies and specific actions to control, reduce and transfer risks. It is widely practiced by organizations to minimize risk in investment decisions and to address operational risks such as those of business disruption, production failure, environmental damage, social impacts and damage from fire and natural hazards. Risk management is a core issue for sectors such as water supply, energy and agriculture whose production is directly affected by extremes of weather and climate.

Source: UNISDR (2009: 26-27). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Simulation. Collective exercise consisting of recreating a hypothetical disaster situation. Participants face critical situations, make decisions and conduct actions by analysing the information provided in the exercise. There is a script with events in a realistic scenario where participants are assigned a specific role and must also provide realistic responses. In summary, it is an information management exercise with a set of roles that may be performed in confined or open spaces, or with a physical or virtual interconnection.

Socio-natural hazard. The phenomenon of increased occurrence of certain geophysical and hydro-meteorological hazard events, such as landslides, flooding, land subsidence and drought, that arise from the interaction of natural hazards with overexploited or degraded land and environmental resources.

Comment: This term is used for the circumstances where human activity is increasing the occurrence of certain hazards beyond their natural probabilities. Evidence points to a growing disaster burden from such hazards. Socio-natural hazards can be reduced and avoided through wise management of land and environmental resources.

Source: UNISDR (2009:27-28). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Sphere Project. The Sphere Project –or “Sphere”– was initiated in 1997 by a group of humanitarian non-governmental organisations

(NGOs) and the International Red Cross and Red Crescent Movement. Their aim was to improve the quality of their actions during disaster response and to be held accountable for them. They based Sphere's philosophy on two core beliefs: first, that those affected by disaster or conflict have a right to life with dignity and, therefore, a right to assistance; and second, that all possible steps should be taken to alleviate human suffering arising out of disaster or conflict. Striving to support these two core beliefs, the Sphere Project framed a Humanitarian Charter and identified a set of minimum standards in key life-saving sectors. The Humanitarian Charter "is a statement of established legal rights and obligations and of shared beliefs and commitments of humanitarian agencies, all collected in a set of common principles, rights and duties".

Source: The Sphere Project (2011:6): *Humanitarian Charter, and minimum standards for humanitarian response*. United Kingdom.

Technological hazard. A hazard originating from technological or industrial conditions, including accidents, dangerous procedures, infrastructure failures or specific human activities, that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Comment: Examples of technological hazards include industrial pollution, nuclear radiation, toxic wastes, dam failures, transport accidents, factory explosions, fires, and chemical spills. Technological hazards also may arise directly as a result of the impacts of a natural hazard event.

Source: UNISDR (2009:29-30). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Timeliness. This refers to the time elapsed between the submission of statistical data and the reference period of field work.

Source: Available online: <http://www.cepal.org/publicaciones/xml/2/45612/manuales74.pdf>.

Tropical cyclone. A tropical cyclone is basically an air mass that turns counter-clockwise around a low pressure centre, which forms in the oceans and seas and advances toward the continent. It is the generic name of a weather phenomenon that may reach various intensities and depending on its behaviour, it is assigned a different name. Thus, it is named consecutively, according to its intensity, first as a tropical depression (with winds of less than 61 km/h); then as a tropical storm (more than 61 km/h and less than 119 km/h); and as a hurricane (119 km/h and up to 250 km/h). Hurricanes are classified in yet five more categories, on a scale known as Saffir-Simpson, according to the intensity of the winds. This classification allows a determination of the intensity of the hurricane, and it is therefore useful to anticipate potential impacts in the continents' inhabited zones.

For more details, see: Miche Rosengausl. (1998). *Destructive effects of tropical cyclones. (Efectos destructivos de los ciclones tropicales)*. Mapfre Foundation, Mexico.

Vulnerability. An intrinsic condition of individuals, households, and communities that makes them susceptible to the impact of specific natural or social threats. In a society, vulnerabilities are differential by reason of the socio-economic, condition, sex, ethnic group, age, physical and mental condition (disability). The more vulnerable a person is, the worse is the expected damage, and a robust or expeditious recovery is less as well; therefore, they require assistance an efficient and specialized manner.

The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

Comment: There are many aspects of vulnerability, arising from various physical, social, economic, and environmental factors. Examples may include poor design and construction of buildings, inadequate protection of assets, lack of public information and awareness, limited official recognition of risks and preparedness measures, and disregard for wise environmental management. Vul-

nerability varies significantly within a community and over time. This definition identifies vulnerability as a characteristic of the element of interest (community, system or asset) which is independent of its exposure. However, in common use the word is often used more broadly to include the element's exposure.

Source: UNISDR (2009:34-35). Available online: http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.

Vulnerability analysis. It allows an assessment of the predisposition of an economic, social, or human element or group of elements ex-

posed to a particular threat, and the identification of factors and contexts that may impede or condition the recovery, rehabilitation, or reconstruction with the available resources.

Vulnerable groups. These are population groups that are more susceptible to the impact of a natural, technological, or social phenomenon. Women, boys, and girls, as well as the elderly and people with disabilities or chronic diseases particularly show a greater fragility, and must therefore be the object of priority action.





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