

Populations at Risk of Disaster

A Resettlement Guide

Elena Correa

with

Fernando Ramírez

Haris Sanahuja



THE WORLD BANK



Global Facility for
Disaster Reduction and Recovery



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Abbreviations

CPM	Critical Path Method
CRED	Centre for Research on the Epidemiology of Disasters
EM-DAT	Emergency Events Data Base
GDP	Gross domestic product
HDI	Human Development Index
HFA	Hyogo Framework for Action 2005–2015
IPPC	Intergovernmental Panel on Climate Change
ISDR	International Strategy for Disaster Reduction
NGO	Nongovernmental organization
OFDA	Office of U.S. Foreign Disaster Assistance (USAID)
PERT	Program Evaluation and Review Technique
PREDECAN	Prevención de Desastres en la Comunidad Andina
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNISDR	United Nations International Strategy for Disaster Reduction
USAID	United States Agency for International Development
WMO	World Meteorological Organization

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Foreword

The lessons learned in decades of implementing resettlement plans in development projects are of high value to those involved in resettling populations to reduce disaster risk.

In the first decade of the 21st century, the world has a population approaching seven billion, and is facing two increasingly stark trends: rapid urbanization and frequent natural disasters. Combined, they substantially increase the risk to which millions of people are exposed, especially in developing countries.

The increased number and magnitude of disasters have led to the development of conceptual frameworks designed to provide a better understanding of the factors triggering them—beyond the natural phenomena as such—and to the development of comprehensive disaster risk reduction strategies. In addition, seeking a significant reduction in human, social, and economic losses incurred as a result of disasters, 168 countries have adopted the Hyogo Framework for Action 2005–2015.

Disaster risk reduction strategies emphasize preventive measures to reduce people's and infrastructure's exposure to natural hazards by decreasing their vulnerability and strengthening institutions for effective management of the risk. When it is determined that the risk to which a population is exposed cannot be mitigated by any other measure, resettlement becomes the only option for reducing the risk.

Planned resettlement of populations has been often associated with development projects that involve compulsory displacement of people and productive activities. In such cases, resettlement is a prerequisite for project execution and is not necessarily implemented for the benefit of the population to be resettled. Other types of events also lead to involuntary displacement, such as management of natural resources for environmental protection or recovery, or wars and conflicts in which people are displaced violently from their homes and are bereft of their possessions.

In the case of natural disasters, resettlement has been included at the postdisaster reconstruction stage. Populations are resettled when they cannot return to live at the original site, either because it has disappeared or because of prevailing conditions of



risk that cannot be controlled by other means. However, preventive resettlement for disaster risk reduction is a step some countries have recently begun systematically to implement.

Resettlement is not merely a housing solution, but a complex, multidimensional process, with potentially very high negative impact if not properly planned and implemented. Therefore, when involuntary resettlement is deemed necessary in projects financed by The World Bank, the Bank has a mandatory policy to ensure that the living conditions of resettled populations are improved or at least restored.

The lessons learned over decades of implementing resettlement plans in development projects are of high value to those involved in resettling populations to reduce disaster risk. Although different events lead to involuntary displacement, the planning and implementation processes are very similar in all the cases. Therefore, the lessons learned can be applied to ensure that resettlement becomes an opportunity to improve living conditions and reduce exposure to disaster risk. Most importantly, efforts to protect the lives and assets of those exposed to disaster risk should not make them more vulnerable to other social and economic risks that the resettlement process could generate.

With this guide, The World Bank wishes to make available to the international community its knowledge and experience of resettlement as a disaster risk reduction measure. Its companion piece, *Preventive Resettlement of Populations at Risk of Disaster: Experiences from Latin America*, illustrates how many of the tools presented here have been applied. Given the relevance of this measure in the context of today's world, we hope that the guide will prove a valuable contribution.

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Efforts to protect the lives and assets of those exposed to disaster risk should not expose them to other social and economic risks that the resettlement process could generate.

About this Guide

This book is designed for governments that make decisions on the application of preventive resettlement programs as disaster risk reduction measures, as well as for institutions and professionals in charge of preparing and implementing these programs, civil society organizations participating in resettlement and risk reduction processes, and at-risk communities.

The basic premises of the guide are that resettlement as a preventive measure should be incorporated in comprehensive risk reduction strategies in order to be effective; and that resettlement's objective is to protect the lives and assets of persons at risk and to improve or at least restore their living conditions.

The guide has two parts. The first consists of two chapters. The first of these looks at disasters occurring worldwide and their impacts, and discusses strategic frameworks for disaster risk reduction.

The second chapter analyzes resettlement as a preventive measure in the context of comprehensive risk management policy. It examines the relevance of resettlement according to the type of natural hazards and to their characteristics, as well as the savings achieved by promoting this type of resettlement rather than handling a disaster-generated emergency and recovering from it. In this chapter, preventive resettlement is proposed to be included in the public policy sphere, since it is based on recognition of the rights and responsibilities of public, private, and civil society stakeholders, and is to be guided by principles of effectiveness, equity, and general public well-being.

Part II consists of four phases. The first phase describes the steps to determine whether a population exposed to the impacts of a natural hazard should be resettled. It starts with the analysis and assessment of the risk and its mitigation measures to formulate the risk reduction plan. At this stage, emphasis is on participation in the preparation of the plan by people at risk since they play two key roles: as potential victims if the hazard materializes and as key stakeholders in managing the risk. Additionally, participation is the only way to make socially feasible a risk reduction plan, and also to safeguard communities from decisions intended to displace them with the argument that their lives are being protected, while other hidden interests are the real motive. To formulate the plan in a participatory manner, the methodology of the logical framework approach is utilized, with an analytical stage based on community information, analysis of stakeholders, and identification and analysis of the risk mitigation measures. At this stage, a decision is made, based on the technical studies, about whether resettlement is the only possible option to mitigate the risk. The planning stage involves the preparation of the risk reduction plan.

Phase 2 sets out the key aspects of the resettlement process that should be defined before starting to prepare a preventive resettlement program. In order to properly

inform decision makers, the complexity and impacts of displacement and resettlement of populations are discussed. Attention is given not only to the impacts on population to be resettled, but also on the host population and the population that continues living at the site. Resettlement is discussed as a multidimensional process comprised of physical, legal, economic, social, cultural, psychological, environmental, political-administrative, and territorial aspects. Lastly, this section discusses organizational factors and mechanisms that should be in place before launching the studies to design the resettlement program, as well as the mechanisms for communication, handling of complaints and claims, dispute resolution, and accountability that should also be established.

Phase 3 discusses the analysis required to formulate a resettlement program including: the census and socioeconomic and cultural study of the at-risk population, the inventory of properties and structures, and the tenure study to determine the land rights. It also sets out methodologies for identifying and assessing the type of impacts people will face as a result of the displacement, and criteria for determining the resettlement alternatives. It stresses that throughout this process, information and communication are of the highest importance, as are consultation and validation regarding the studies prepared. Phase 3 also includes a matrix for classification of the population by type of impact and level of vulnerability, and a second matrix for definition of the resettlement objectives. The impacts on populations that will continue living at the site and the types of uses that may be made of at-risk land following resettlement are also discussed. This is another fundamental consideration, since if a use is not assigned to control the reclaimed land, another population may settle there, nullifying the resettlement effort and losing the investment made. The type of use assigned also validates the operation as a whole.

Lastly, phase 4 describes the process of formulating the resettlement program. Two approaches to resettlement—collective and individual—are discussed and the components of each alternative described. As with the earlier stages, communication, consultation, and consensus are emphasized. This phase also describes the program to restore the socioeconomic conditions of the population not displaced but facing impacts from the resettlement of its neighbors; a contingency program in case the emergency occurs before resettlement; and a reclamation and rehabilitation program for at-risk land. Finally, the content and scope of the monitoring and evaluation systems are described.

Although in preparing this guide, the goal was to include all relevant aspects of preparing a preventive resettlement program, programs of this type should be tailored to the characteristics of the population involved and the context in which they will be implemented. Resettlement programs should also be implemented with some flexibility so that they can respond to any problems arising during the process.

Part I

Disaster Risk Management and Preventive Resettlement



Photo: Michel Matera

Trends of Natural Disasters and Risk Reduction Strategies

By Haris Sanahuja

Disasters are the result of the overlapping in time and space, of a natural phenomenon of certain intensity—that is, a *hazard*—with a population exposed to its impact. A natural phenomenon cannot be considered a hazard unless it is analyzed in a socioeconomic context where its occurrence can affect society. This context also influences the level of susceptibility to damage—that is, *vulnerability*—to a particular hazard. When a hazard affects two areas with different socioeconomic and environmental contexts, the level of damage depends on these differences.

The Caribbean region, with its diverse island states and annual tropical storms, offers a useful area in which to analyze the effects of the same natural disaster. Indeed, the differences in the extent of damage from tropical storms are related to different levels of vulnerability. For example, the low level of human development and severe environmental degradation in Haiti greatly explain why the damage is likely to be far larger than in other Caribbean states, despite similar levels of exposure. Likewise, the impacts are generally lower in countries with more highly developed disaster preparedness, such as Cuba and Jamaica.¹

Thus, the probability of a disaster and the magnitude of its impact are defined as the product of two factors—the level of the hazard and the degree of vulnerability—which together constitute risk. Accordingly, disasters show where, how and for whom the risk translates into human and material damages and losses. Analyses of the spatial and temporal distribution of the occurrence and impacts of disasters provide critical information for assessing the level of risk. The geographical distribution and magnitude of the effects allow analysts to (a) gauge the scope of the problem, (b) urge that it be a public policy issue, (c) identify trends and (d) prioritize actions in the field of disaster risk reduction.

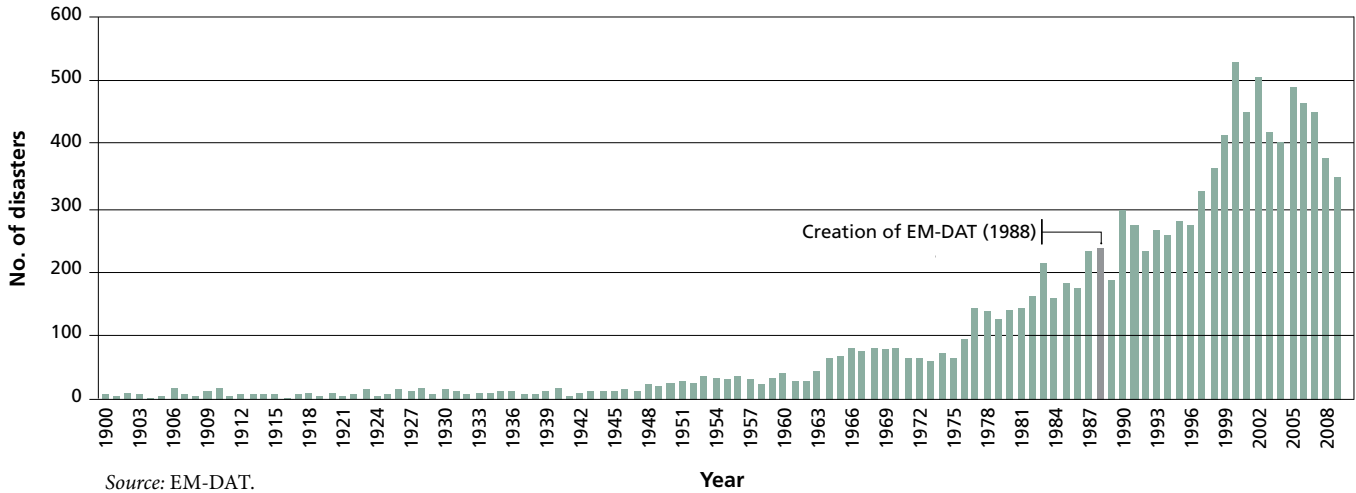
Global Patterns and Trends in the Occurrence and Impacts of Disasters

Information about the occurrence and effects of disasters worldwide since the beginning of the 20th century is available in the global Emergency Events Database (EM-DAT).² EM-DAT statistics show that the number of disasters—triggered by the occurrence of natural hazards—has accelerated sharply worldwide (see figure 1.1).³

Although some argue that the increased number of disasters shown in figure 1.1, up to the 1970s, is due to improved registering and the existence of scientific centers that monitor these events, the upward trend is the result of their greater frequency, which has been confirmed for the past four decades through statistics systematically compiled by

This chapter presents the natural disaster trends worldwide, its impacts and importance of disaster risk reduction strategies.

Figure 1.1. Occurrence of Geological and Hydrometeorological Disasters (1900–2009)

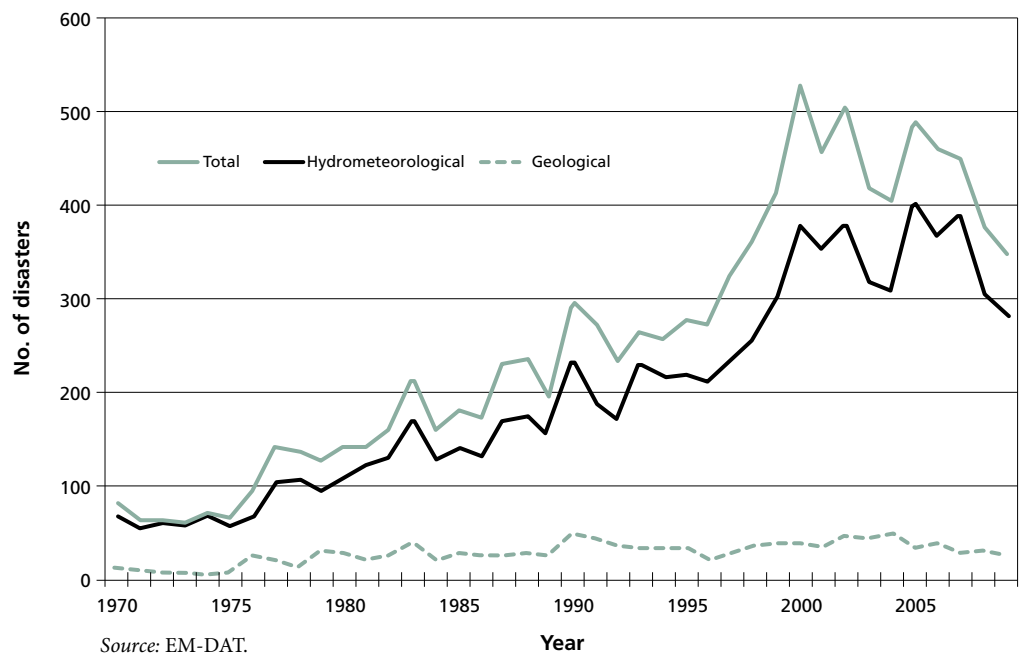


Source: EM-DAT.

EM-DAT and other international databases, such as those maintained by the Munich Re and Swiss Re reinsurance companies. For example, the number of disasters recorded in the EM-DAT associated with natural hazards doubled from 2000 to 2009,⁴ compared with the period 1980 to 1989. The analysis of geological and hydrometeorological hazards shows a clear upward trend—from an annual average of 257 disasters a year during the 1990s to an annual average of 382 from 2000 to 2009.

Figure 1.2 shows the distribution of the disasters from 1970 to 2009. The upward trend in the total correlated clearly with the occurrence of disasters of hydrological origin, while the frequency of those of geological origin remained fairly constant. Thus, the analysis of types of disasters over the past four decades showed a predominance of those associated with hydrometeorological hazards, which accounted for more than 75 percent of all disasters reported for that period.

Figure 1.2. Occurrence of Disasters Worldwide by Type of Hazard (1970–2009)



Source: EM-DAT.

Table 1.1 shows the number of disasters per decade from 1970 to 2009, with a breakdown of the different hazards of geological and hydrometeorological origin. Floods and storms account for a high percentage of the total and had a more rapid rate of increase than other hazards: for example, floods increased six fold since the 1970s, while storms tripled. Overall, in the past decade, there was an annual average of 344 disasters associated with hydrometeorological events, compared to 224 in the 1990s.

Table 1.1. Occurrence of Disasters Worldwide by Decade and Type of Hazard (1970–2009)

Origin	Hazard				Total	
	Type	1970–79	1980–89	1990–99		2000–2009
Geological	Earthquakes (seismic)	101	196	267	290	854
	Landslides (tectonic)	2	17	16	4	39
	Volcanic eruptions	23	32	52	60	167
Subtotal		126	245	335	354	1,060
Hydrometeorological	Landslides	53	101	145	150	449
	Forest fires	26	60	103	142	331
	Floods	263	525	865	1,729	3,382
	Droughts	65	126	137	170	498
	Extreme temperatures	15	38	92	220	365
	Storms	291	559	899	1,055	2,804
Subtotal		713	1,409	2,241	3,466	7,829
Total		839	1,654	2,576	3,820	8,889

Source: EM-DAT.

The Impacts of Disasters

The occurrence of disasters and the relative shares of different natural hazards provide only initial and partial insight into disaster risk patterns. If disasters' impact in human and economic terms is incorporated into the analyses, a very different pattern emerges that reveals disaster risk trends and their spatial distribution patterns.

According to EM-DAT records, almost 8,900 disasters associated with geological and hydrometeorological hazards over the past four decades (1979–2009) resulted in 3 million deaths, affected 6 billion people, and spawned economic losses of over US\$1.8 billion. The number of people affected by these types of disasters increased in each decade—not just in absolute terms, but also as a share of the average world population in each decade (see figure 1.3).⁵

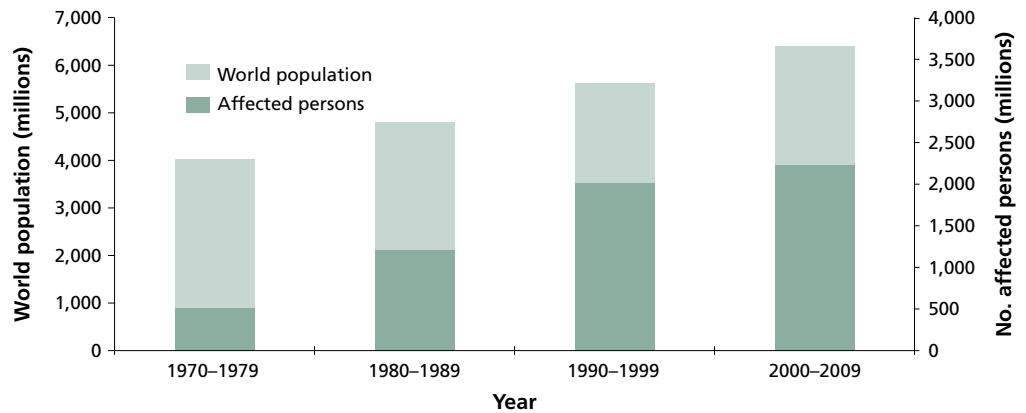
Figure 1.4 shows the percentage of deaths by type of hazard for the same period: 36 percent of deaths were directly related to earthquakes, 27 percent to storms, 23 percent to droughts, and 8 percent to floods.

Some of the most lethal disasters of the past decade were (a) the Indian Ocean tsunami in 2004, which killed 226,408, (b) Cyclone Nargin in Myanmar in 2008, which killed 138,366, (c) the Sichuan earthquake in China in 2008, which killed 87,476, and (d) the

According to EM-DAT records, almost 8,900 disasters associated with geological and hydrometeorological hazards over the past four decades (1979–2009) resulted in 3 million deaths, affected 6 billion people, and spawned economic losses of over US\$1.8 billion.

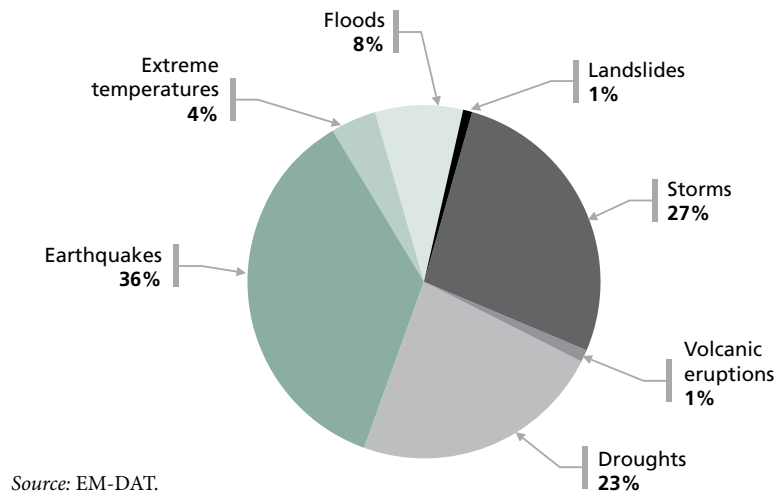
heat wave in Europe in 2003, which killed 72,210 (UNISDR 2009b). At the start of the current decade, Latin America and the Caribbean region experienced another megadisaster—the devastating earthquake in Port-au-Prince, Haiti, which killed 230,000 and affected more than 2 million.

Figure 1.3. Number of Persons Affected by Disasters as a Share of the Average Population per Decade (1970–2009)



Source: U.S. Census Bureau, Population Division (<http://www.census.gov/ipc/www/idb/region.php>).

Figure 1.4. Percentage of Deaths by Type of Hazard (1970–2009)

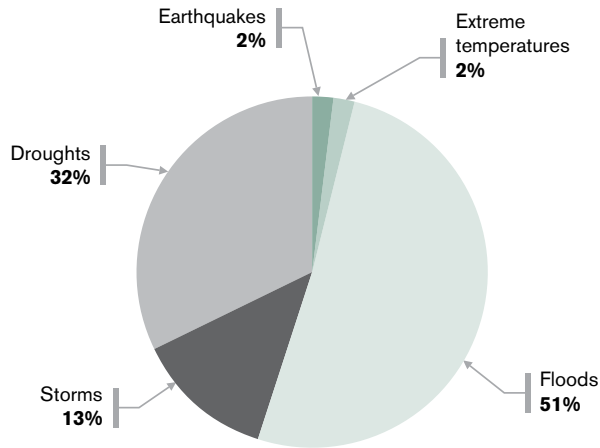


Source: EM-DAT.

Although earthquakes are associated with the highest mortality rates, a large percentage of people are affected by natural hazards related to climatic events such as floods and storms.

Figure 1.5 shows the percentage distribution of those impacted by disasters of geological or meteorological origin in the past four decades: floods account for more than half the total number, while droughts account for 32 percent. In the past decade, floods, droughts, and storms (in that order) accounted for more than 95 percent of the 2 billion people affected by natural hazards.

Figure 1.5. Percentage of Persons Affected by Type of Hazard (1970–2009)

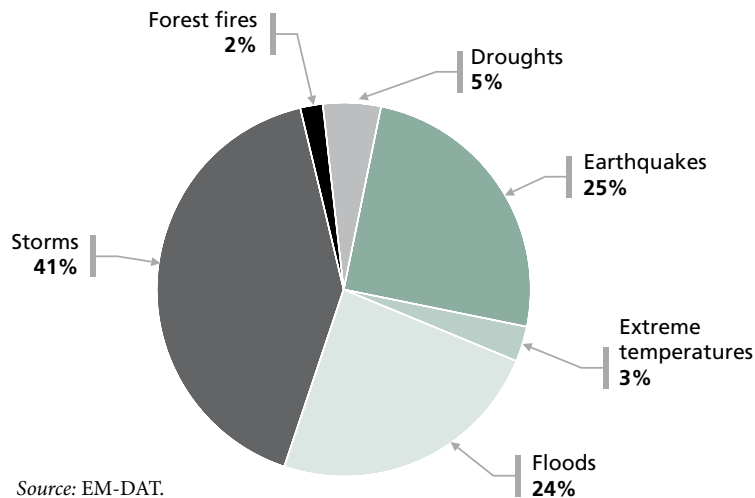


Source: EM-DAT.

With regard to economic losses, analyses of the past four decades show that storms and floods combined account for 65 percent, while earthquakes are directly associated with 25 percent

With regard to economic losses, analyses of the past four decades show that storms and floods combined account for 65 percent, while earthquakes are directly associated with 25 percent (see figure 1.6).

Figure 1.6. Percentage of Economic Losses by Type of Hazard (1970–2009)



Source: EM-DAT.

Analyses of trends in economic losses due to natural disasters must still overcome many methodological hurdles related to the coverage, processing, and standardization of data.⁶ Nevertheless, one trend that appears to be pronounced over the past 10 years and is related to global urbanization is the increasing accumulation of economic assets in large population centers in developing countries. Many of those urban centers are located in areas that are geologically unstable or prone to hydrometeorological hazards. As population density grows and the pace of economic activity in those hubs quickens, the exposure of economic assets to hazards increases significantly.⁷

Economic losses in absolute terms are higher in the more developed countries, but when measured against the total wealth in those countries, they are lower in relative terms than in developing countries.

Differential Distribution of Risk

Although the distribution of hazards makes no distinction between more or less developed countries, their impacts in terms of deaths and people affected is much lower in countries with higher levels of human development. For example, Japan and the Philippines, which have similar degrees of exposure to tropical cyclones, have very different mortality risks, which can be correlated with the different levels of human development: Japan's Human Development Index (HDI) score is 0.953, compared to the Philippines', which is 0.771.⁸ In the Philippines, with a population of 16 million, the annual likelihood of deaths due to cyclones is 17 times higher than in Japan, which has 22.5 million inhabitants (UNISDR 2009a; UNISDR 2009b).

Economic losses in absolute terms are higher in the more developed countries, but when measured against the total wealth in those countries, they are lower in relative terms than in developing countries. Likewise, in small island states, such as St. Lucia, disasters can wipe out several decades of development, while in high-income countries, such as the United States, the effects are less perceptible, even in the case of such events as Hurricane Katrina, which in 2005 caused economic losses in the order of US\$125 billion.⁹

Intensive Risk and Extensive Risk

The *Global Assessment Report on Disaster Risk Reduction* (UNISDR 2009a) distinguishes between *intensive* and *extensive risk*, based on differences in the spatial and temporal concentration of losses.¹⁰ *Intensive risk* refers to the exposure of large concentrations of people and economic activities to intense hazard events, which can lead to potentially catastrophic impacts involving deaths and the loss of assets.

Extensive risk, on the other hand, refers to the exposure of dispersed populations to repeated or persistent hazard conditions of low or moderate intensity, which can lead to debilitating cumulative disaster impacts. It usually affects large numbers of persons and damages homes and local infrastructure, but without generating high mortality rates or major destruction of economic assets.

Globally documented losses due to disasters focus mainly on a limited number of low-frequency events. Between January 1975 and October 2008, EM-DAT recorded 8,866 events (excluding epidemics) that caused 2,283,767 deaths. Of those deaths, 1,786,084 were a result of 23 megadisasters, mainly in developing countries; in other words, 72.2 percent of the deaths were caused by 0.26 percent of the events recorded. During the same period, the economic losses recorded totaled US\$1.5 billion. The 25 megadisasters for that period accounted for a mere 0.28 percent of the events, but accounted for 40 percent of the losses, most of them occurring in developed countries. Intensive risk is associated with this pattern of mortality and economic losses, combining a high degree of geographic concentration with a rather limited number of events.

As opposed to intensive risk, where the most representative impact variables are mortality and economic losses, extensive risk exposes large areas to low-intensity

but more frequent losses, which are related to other types of impacts—such as a large number of people affected (though not necessarily killed) and damage to homes and local infrastructure. For example, 99.3 percent of local losses reported in the set of countries assessed by the *Global Assessment Report* (UNISDR 2009a) accounted for 16 percent of the mortality but 51 percent of housing damage.

The *Global Assessment Report* points out that low-intensity but very widespread losses are a major, albeit little recognized, component of the effects and costs of disasters, and that extensive manifestations of risk are more typical of current risk patterns, which are characterized by an upward trend in the exposure of persons and assets at the local level (UNISDR 2009a). Since these losses are associated with meteorological phenomena, climate change is likely to exacerbate them. In fact, 97 percent of reports of local losses are related to climatic events and the figures for losses associated with floods and heavy rainfall are increasing more than for any other type of natural hazard.

A Changing Climate

The Intergovernmental Panel on Climate Change (IPCC) has confirmed that changes are already occurring in the geographical distribution, frequency, and intensity of hydrometeorological hazards because of climate change (Parry et al. 2007). The changes observed in the volume, intensity, frequency, and type of precipitation are associated with increases in the areas affected by drought, in the numbers of heavy daily precipitation events that lead to flooding, and in the intensity and duration of certain kinds of tropical storms (UNISDR 2009a).

The IPCC Fourth Assessment Report states that tropical cyclones are likely to intensify if the surface temperature of the sea rises (Parry et al. 2007); and any increase in the severity of cyclones will magnify the unevenness of the disaster risk distribution. The *Global Assessment Report* (UNISDR 2009a) provides a telling example: the economic risk simulation model shows that 1.9 percent of the gross domestic product (GDP) of Madagascar is at risk annually from Category 3 cyclones, but only 0.09 percent of the GDP of Japan. If these cyclones were to increase to Category 4, 3.2 percent of the GDP of Madagascar would be at risk, but only 0.16 percent of the GDP of Japan.

Based on the concentration and uneven distribution of risk, it may be assumed that in a context of climate change, the interactions between disaster risk and poverty will intensify. This intensification occurs because the frequency of hazards such as floods and tropical cyclones increases and the resilience of the affected populations decreases, due to low agricultural productivity, shortages of water and energy, increases in disease vectors, among other factors (see UNISDR 2009a).

Institutional Frameworks and Strategies for Disaster Risk Reduction

Over the past two decades, discussion of what today is called disaster risk reduction has been the result of a slow transition and change of paradigm. Initially, the emphasis was on

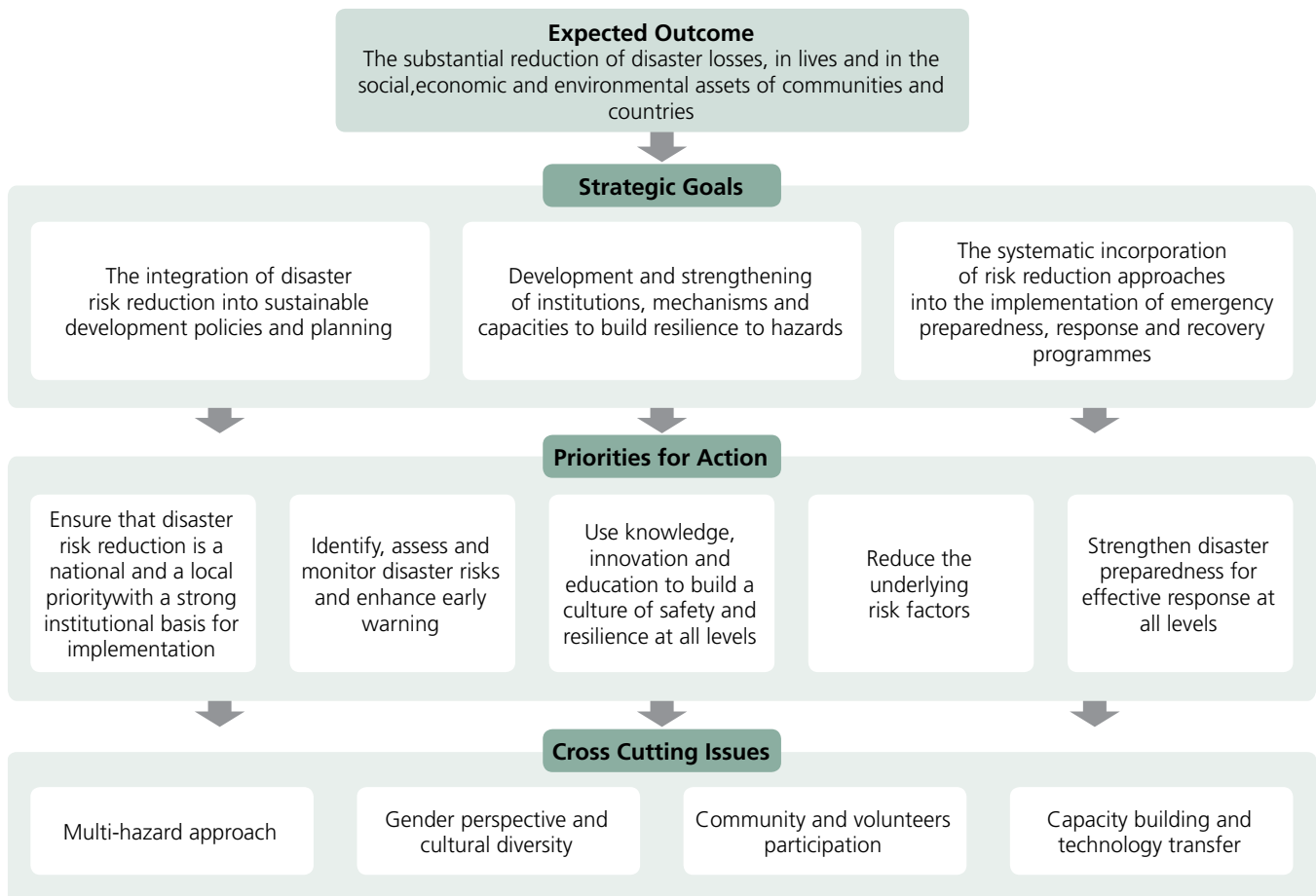
The Intergovernmental Panel on Climate Change (IPCC) has confirmed that changes are already occurring in the geographical distribution, frequency, and intensity of hydrometeorological hazards because of climate change

the event itself and response activities (disaster management) but later it changed towards an approach in which disaster is understood as a manifestation of vulnerabilities associated with socioeconomic and environmental processes. In this view, natural hazards “trigger” disasters but are not the agents that cause them (disaster risk management).

This conceptual trend recognizes that risk is an outcome associated with social construction processes and linked to the predominant forms of social and economic development. For this reason, “disaster risk management” is inseparable from “development management.” Further, this change in paradigm—from a focus on disaster, natural hazards, and response, to one in which risk, vulnerability, and their reduction become dominant themes—has also prompted a reconsideration of institutional roles and needs, so the countries can deal with the issue more effectively.

A recent milestone at the international level was the World Conference on Disaster Reduction, in Kobe, Japan, in 2005, which adopted the Hyogo Framework for Action 2005–2015 (HFA). This framework, adopted by 168 governments, aims to substantially reduce the loss of lives and the social, economic and environmental assets of communities and countries by 2015. The HFA focuses on three strategic goals and five priorities for action (figure 1.7), and articulates the responsibilities of governments, international organizations, nongovernmental organizations (NGOs), and civil society with respect to their roles in and contributions to implementing the HFA.

Figure 1.7. The Hyogo Framework for Action (2005–2015)



Source: UNISDR.

To help implement the HFA, the International Strategy for Disaster Reduction (ISDR) now includes a “platforms system” (the Global Platform for Disaster Risk Reduction), as a new world forum for shaping disaster risk reduction policies, with the active participation of governments, civil society, and specialized agencies, in addition to the United Nations system. Likewise, regional, thematic, and national platforms are being developed to promote the HFA in different regions and countries.¹¹

The biggest challenges to implementing the HFA are presented in Priority for Action No. 4, “reducing the underlying risk factors,” which involves land use planning and sectoral development programs, including rehabilitation and reconstruction in post-disaster situations.

This priority for action also promotes (a) income diversification options, (b) financial mechanisms for socializing risks, and (c) partnerships between the public and private sectors.¹² Table 1.2 shows the six indicators used to measure progress under this priority, listing the main areas countries must address to reduce underlying risk factors.

Table 1.2. Indicators that Underlying Risk Factors Are Being Reduced

Disaster risk reduction is viewed as an integral objective of environment-related policies and plans that affect both natural resource management as it relates to land use and climate change adaptations.
Social development policies and plans are designed to reduce the vulnerability of the populations most at risk; they address issues such as food security, public health, risk-sharing mechanisms, protecting critical public infrastructure, etc.
Economic and productive sectoral policies and plans are implemented to reduce the vulnerability of economic activities.
Planning and managing human settlements incorporate disaster risk reduction elements, including building-code enforcement.
Disaster risk reduction measures are integrated into postdisaster recovery and rehabilitation processes.
Procedures are created to assess the disaster risk impacts of major development projects, especially infrastructure.

Source: HFA in UNISDR (2007).

The Different Approaches and Tools for Risk Management

Reducing these underlying risk factors necessarily involves a discussion of disaster risk management and the tools needed to implement it.

The risk management concept refers to an ongoing process whose goal are predicting, reducing, and controlling risk factors. This process promotes, prepares, and implements policies, strategies, instruments, and actions that help society confront natural hazards and minimize the losses and damages associated with their effects (Lavell 2008).

Disaster risk management may be *corrective* or *prospective* (Lavell 2004). *Corrective management* takes its point of reference from already existing risk, which is the product of past social actions—for example, a settlement, located in a flood zone, that was built with inappropriate techniques; a hospital constructed without antiseismic standards; a community built around a single access road prone to recurrent landslides; or agricultural activity ill adapted to the climate and its extremes.

This corrective management approach may also be *conservative* or *progressive* (Lavell 2009). The *conservative corrective model* aims to reduce visible risk conditions (by protecting housing, shoring up river banks or lots on steep slopes, etc.) and to strengthen institutions so they can respond more effectively to emergencies. The underlying factors of existing risks—related to poverty or power structures—are not considered.

The *progressive corrective model* combines reducing existing risk factors with actions based more on development objectives, in communities where risks have been identified. The approach involves reducing poverty, empowering people and planning, and adopting development goals by attacking the underlying causes of risk.

Unlike corrective management, prospective management works with risks that have not yet presented themselves but could nevertheless be generated by new investments and development initiatives, whether by governments, the private sector, NGOs, development associations, families, or individuals.

Prospective risk management is therefore an integral part of development planning, investment project planning, and environmental management. It implies practices that avoid repeating past errors that led to the existing levels of risk. The strategies or other specific tools for prospective risk management are largely similar to those appropriate for corrective management, although the timing and orientation of the various activities differ.

Regardless of whether corrective and prospective risk management succeeds, countries will always need to respond to the crises triggered by extreme events. The area of risk that cannot be addressed by either corrective or prospective management is called *residual risk*, and in this area humanitarian responses will continue to play a dominant role.

Risk Reduction Challenges

Risk reduction is increasingly important on the international agenda, within a context where rapid urbanization and environmental degradation combine with grinding poverty and weak governance—especially at the local government level—to deepen vulnerability that is stressed even further by the effects of climate change.

Thus, the use of risk management tools should be intensified and risk reduction criteria made an integral part of land use planning and development policies. However, regardless of whether corrective or prospective risk management measures are implemented, reducing the underlying factors will continue to pose enormous challenges.

In certain scenarios, when nothing else can mitigate the risk, the most viable option for reducing the risk to which some communities are exposed is resettlement. Although resettlement is a complex affair, there are examples of successful preventive resettlements that have not only eliminated the risk of disaster but also improved the standard of living and safety of the population involved and reclaimed the at-risk areas to their original use.

The use of risk management tools should be intensified and risk reduction criteria made an integral part of land use planning and development policies.

Under current conditions, in which risk scenarios may worsen for millions of people due to development models and land tenure patterns, an awareness of preventive re-settlement outcomes may help improve this practice as a risk reduction measure.

Notes

1. For the links between the impact of disasters and human development, see UNDP (2004).
2. EM-DAT was established in 1988 by the Centre for Research on the Epidemiology of Disasters (CRED) with the support of the Office of Foreign Disaster Assistance (OFDA) of the United States Agency for International Development (USAID). It contains data on the occurrence and effects of natural and technological disasters in the world, reported since 1900. See <http://www.cred.be>.
3. Figure 1.1 includes only disasters associated with hydrometeorological and geological hazards. Biological hazards (such as epidemics and insect infestation) were excluded from the analysis because they fall outside the scope of this analysis.
4. EM-DAT distinguishes between disasters associated with natural hazards (natural disasters) and technological disasters. Natural disasters include three types: geological hazards (earthquakes, volcanic eruptions, landslides due to tectonic movements, and tsunamis); hydrometeorological hazards (floods, droughts, storms, extreme temperatures, forest fires, and landslides due to hydrological causes); and biological hazards (epidemics and insect infestation).
5. The population figures in the chart for each decade are derived by calculating the average population for that time period. The figures for the number of victims correspond to the sum of the victims for each decade.
6. Although worldwide absolute losses have increased exponentially since the 1970s, when the figures are adjusted for inflation and expressed as a percentage of global gross domestic product (GDP), the increases may be much less marked (UNISDR 2009a).
7. Teheran and Istanbul, for instance, both of which are prone to earthquakes, have experienced swifter urban and economic growth than the overall growth of their respective countries (UNISDR 2009a).
8. The degree of human development achieved by countries is measured on the Human Development Index (HDI) published each year by the United Nations Development Programme (UNDP). The HDI measures average progress in three core dimensions of human development (a long and healthy life, knowledge, and a decent standard of living). For more details on the HDI, see <http://www.undp.org>.
9. For a more detailed analysis, see UNISDR 2009a, 57–60.
10. The report was coordinated by the International Strategy for Disaster Reduction Secretariat (UNISDR), in collaboration with UNDP, The World Bank, the United Nations Environment Programme (UNEP), the World Meteorological Organization (WMO), the United Nations Educational, Scientific and Cultural Organiza-

tion (UNESCO), the ProVention Consortium, Norway's Geotechnical Institute and other ISDR-related entities.

11. For more about the ISDR system, see <http://www.preventionweb.net/english/hyogo/isdr/>.
12. See further detailed information on the actions included under Priority 4 of the HFA.

References

- EM-DAT (Emergency Events Database). OFDA/CRED International Disaster Database. Université Catholique de Louvain, Brussels, Belgium. <http://www.emdat.be>.
- LaVell, A. 2004. *Local Level Risk Management: From Concept to Practice*. Quito, Ecuador: Cepredenac-UNDP.
- . 2008. Apuntes para una reflexión institucional en países de la Subregión Andina sobre el enfoque de la reducción de riesgos. Lima: Prevención de Desastres en la Comunidad Andina (PREDECAN).
- . 2009. *Local Disaster Risk Reduction: Lessons Learned from the Andes*. Lima: PREDECAN.
- Parry, M.L., Canziani, O.F.; Palutikof, J.P., Linden, P.J. v.d. and Hanson, C.E. (Eds.). 2007 *Fourth Assessment Report of the IPCC* (Intergovernmental Panel on Climate Change). *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the IPCC*. Cambridge, UK. Cambridge University Press.
- UNDP (United National Development Programme). 2004. *Reducing Disaster Risk, A Challenge for Development*. ProVention Consortium Guidance Note 8. New York: UNDP Bureau for Crisis Prevention and Recovery.
- UNISDR (United Nations International Strategy for Disaster Reduction). 2009a. *Global Assessment Report on Disaster Risk Reduction*. Geneva: United Nations. <http://www.preventionweb.net/english/hyogo/gar/report/index.php?id=9413>.
- . 2009b. *2009 Disasters in Numbers*.
- UNISDR (International Strategy for Disaster Reduction). 2009c. *Terminology on Disaster Risk Reduction*. Retrieved from: http://unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf

Resettlement as a Preventive Measure in a Comprehensive Risk Reduction Framework

By Fernando Ramírez

This chapter analyzes the different components of a disaster risk management framework and the role of resettlement as a preventive measure.

Disaster Risk Management

The United Nations International Strategy for Disaster Reduction defines disaster risk management as “the systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters” (UNISDR 2009).

From the government perspective, it entails the implementation of a series of public policies related to risk identification and assessment, risk reduction, financial protection, emergency preparedness and response, and postdisaster recovery, as is shown in table 2.1.

This chapter analyzes the different components of a disaster risk management framework and the role of resettlement as a preventive measure in accordance to the characteristics and types of natural hazards.

Table 2.1. Disaster Risk Management Policy Framework

Field of Action	Instruments
Risk identification	<ul style="list-style-type: none"> ▪ Studies, monitoring, models, maps, and information systems ▪ Individual and collective perception surveys
Risk reduction	<ul style="list-style-type: none"> ▪ Planning and awareness: <ul style="list-style-type: none"> ▪ Land use planning, sector planning, codes, legislation and regulations, public information, and education ▪ Physical intervention in the territory: risk mitigation works, structural reinforcement, housing improvement, preventive resettlement, and infrastructure vulnerability reduction
Financial protection	<ul style="list-style-type: none"> ▪ Reserve mechanisms (funds, contingent credits, taxes, etc.) ▪ Risk transfer financing mechanisms (insurance, reinsurance, disaster bonds)
Emergency preparedness and response	<ul style="list-style-type: none"> ▪ Early warning systems ▪ Emergency and contingency plans ▪ Evacuation of the affected population, temporary resettlement ▪ Response training ▪ Technological infrastructure, communications, and logistics
Postdisaster recovery	<ul style="list-style-type: none"> ▪ Legislation and institutional organization ▪ Reconstruction plans ▪ Postdisaster resettlement of the stricken population

Source: Adapted from Ramírez and Rubiano 2009.

Risk identification includes actions to raise awareness of hazards, vulnerabilities, and risks, as well as public information and communication actions designed to influence public opinion and perceptions.

Risk reduction refers to a broad group of fields of action intended to minimize existing risk and prevent the generation of new risks. One subset seeks to incorporate risk reduction criteria in land use and sector planning, education, and legislation. Another consists of physical interventions within the territory to minimize risk and/or vulnerability factors. This subset includes resettlement of populations when other risk reduction measures are not feasible.

Financial protection refers to actions designed to minimize the economic impact of disasters on the fiscal situation of governments and to increase their financial capacity to cope effectively with postdisaster recovery processes.

Emergency preparedness and response refers to actions designed to develop response capacity and ensure effective emergency response. It involves actions related to early warning systems, organizational models, logistics, communications, training, and the emergency response itself, including evacuation of those stricken by the disaster and their temporary resettlement in shelters.

Postdisaster recovery, as the term indicates, refers to planning, organizational, and capacity development actions to ensure a timely and efficient transition from emergency to recovery. Reconstruction processes often involve resettlement of part of the population, since the risk condition where they lived prior to the disaster is now exacerbated or is unacceptable from a public safety standpoint.

In defining, designing, and implementing these policies, a legislative and institutional framework must be in place to rule and coordinate the different government authorities and key stakeholders, as well as a general financing strategy to mobilize resources in accordance with the scope and priorities of each policy.

Resettlement in the Context of a Comprehensive Risk Management Framework

Land use and occupation reflect the development model that has prevailed in a given country. Hence, disaster risk is the cumulative result of historical deficiencies in development planning, from which unevenly distributed development ensues, as does greater exposure to risk by some part of the population—usually the low-income segment.

Human settlements at high disaster risk are typically found in the most environmentally sensitive areas, such as those surrounding hydric systems or on slopes that play an important part in ecosystem dynamics and that should be protected. However, an absence of land use planning as guidance in locating human settlements, institutional weakness in enforcing relevant legislation and regulations (where such exist), and an absence of low-income housing programs tend to result in human settlement in high-risk areas.

The urbanization rate in the world has grown considerably since the second half of the 20th century. By the middle of the century, only 29 percent of the population lived in cities; in 2007 it was 50 percent, and by 2050 it is expected to be 69 percent. This rapid growth is occurring particularly in developing countries, where within forty years

An absence of land use planning as guidance in locating human settlements, institutional weakness in enforcing relevant legislation and regulations (where such exist), and an absence of low-income housing programs tend to result in human settlement in high-risk areas.

(2010–2050) the urban population is likely to double, from 2.7 to 5.4 billion, compared with the urban population in developed countries, where the increase is expected to be 0.8 percent, bringing the population to one billion.¹ This rapid growth in population has led to unplanned urban growth and a rise in the number of settlements considered unlawful because they do not comply with urban planning regulations and lack land titles. Many of these settlements are located in high-risk areas, exacerbating disaster risk and the numbers of people exposed.

The risk is further exacerbated by inappropriate human practices contributing to still higher levels of natural hazards, such as deforestation, lack of drainage systems, and concrete and asphalt paving, all of which lessen the absorption capacity of the plant layer.

For these reasons, disaster risk management means not only intervention in and control of natural phenomena, but also (and especially) modification of existing land use practices, occupation practices, and economic activities that generate hazards and vulnerabilities; it also means strengthening the application of risk reduction criteria in development planning.

In these circumstances, the aim of population resettlement is to modify existing risk conditions generated by a country's structural problems, and is therefore a corrective measure. Like any such measure, it is always more costly than preventing the problem. Its relevance and effectiveness depend heavily on coordination with other risk management policies and actions—that is, it draws on in-depth risk identification and assessment studies; incorporates mitigation analysis; is supplemented by other physical risk reduction actions; must be linked to regulatory and land use decisions; and must be financed with governmental resources. Additionally, in implementing a preventive resettlement plan, preparedness and emergency response measures (for example, early warning systems, evacuations) must be taken; and, lastly, when resettlement is part of postdisaster recovery processes, it constitutes a fundamental pillar of rehabilitation and reconstruction plans.

Relocating a population, its economic activities, and its social networks and relations, as well as its natural physical and built environment (buildings, infrastructure, and facilities) is a complex process with significant impacts—direct and indirect—on the population and on governments. A resettlement process may become an opportunity for comprehensive improvement in the quality of life of the population, even exceeding the direct objectives of disaster risk reduction. But if not duly planned or conceived as a complementary action integrated into a comprehensive risk management strategy, it may lead to ineffective and unsustainable processes that create frustration for families and governments alike.

Therefore, if resettlement is to be effective as a disaster risk reduction measure and not provide an incentive for further human settlements in at-risk areas, it must form part of a comprehensive disaster risk reduction strategy, which must include the following:

- Formulation of detailed land use plans that promote use for human activities consistent with the land's natural attributes

Relocating a population, its economic activities, and its social networks and relations, as well as its natural physical and built environment (buildings, infrastructure, and facilities) is a complex process with significant impacts—direct and indirect—on the population and on governments.

- Strengthening of institutions in charge of formulating and implementing land use plans
- A housing supply that affords low-income populations access to adequate and lawful housing on safe sites
- Control of human settlement in unsuitable areas
- Control of human activities that degrade the natural environment and exacerbate natural hazards.

In the absence of comprehensive actions, human settlement in at-risk areas will be a recurrent problem, rendering the resettlement of populations unfeasible owing to the high costs potentially involved, and even becoming an incentive to step up occupation in at-risk areas if this is the only way assistance can be obtained from the government to resolve the housing problem.

Preventive resettlement as a corrective mitigation measure through intervention in an existing risk condition corresponds to the sphere of public policy, that is, it is based on recognition of the rights and responsibilities of public, private, and civil society stakeholders; is guided by principles of effectiveness, equity, and precedence of public well-being; and takes place in a specific economic, institutional, legal, and political context. Disaster risk management requires a decision taken jointly by the government and communities to reach consensus regarding acceptable and feasible safety conditions in the context of somewhat uncertain events and regarding the assumption of responsibility for the consequences of decisions taken.

Resettlement is a measure for intervention that seeks to address the exposure that is one of the components of vulnerability, and it results in nullification of the risk condition. Physically, it means changing the location of the exposed elements, in this case, the population

Resettlement and the Characteristics of the Natural Hazard

Having defined resettlement as an element of a comprehensive risk reduction strategy, it is necessary to analyze in what circumstances it is a pertinent measure. To that end, analysis must focus on the physical aspect of the problem of vulnerability and risk so that the conditions that facilitate or impede effective resettlement—conditions that depend on the specific characteristics of each socio-natural phenomenon—can be understood.

Resettlement is a measure for intervention that seeks to address the exposure that is one of the components of vulnerability, and it results in nullification of the risk condition. Physically, it means changing the location of the exposed elements, in this case, the population, so that there is no time-space coincidence with a specific socio-natural phenomenon that may develop or intensify in the future. Therefore, resettlement is relevant, from a physical standpoint, only with regard to those phenomena where it is possible to reduce exposure effectively. This possibility is related to the phenomenon's spatial distribution, its impact energy, the forecast uncertainty, and mitigation potential.

The phenomenon's *spatial distribution* determines the characteristics and size of the area where exposure occurs. Some phenomena are regional, such as earthquakes and tremors. Volcanic eruptions and hurricanes affect large areas; other risks, such as land-

slides and floods, are local and confined to smaller areas. Additionally, risks, as latent conditions, have different spatial significances than the events themselves. For example, a country's entire territory may be exposed to seismic risk, but this does not mean that a specific earthquake will necessarily affect the entire area defined as at risk. Since the elements' exposure takes the risk as reference, in this case it is relevant to consider its spatial distribution. In general, the larger the risk's area of influence, the greater the number and variety of exposed elements; hence, the greater the complexity of implementing a resettlement program.

A second characteristic to be considered is the phenomenon's *impact energy*, which provides an idea of its "size" and damage potential. The physical effect on the exposed elements, such as impact, collapse, burial, displacement, and destruction by fire, among others, will be more intense the greater the energy released in each event. For example, the impact on elements that come into contact with a lava flow will be uniformly destructive,² whereas the impact of slow flooding from a river overflowing its banks will vary with the vulnerability of the exposed elements. As a general rule, resettlement is more relevant in high-impact-energy events, where the physical vulnerability of the population and built structures (buildings, infrastructure, facilities, etc.) is very high and mitigation possibilities very few.

The third factor to be considered is *forecast uncertainty*, that is, how possible it is to anticipate when, where, and on what scale a phenomenon will occur. Without exception, a degree of uncertainty is present in the modeling of natural phenomena, given the current limitations in understanding, representing, and simulating their dynamics. However, uncertainty is greater for some phenomena than for others. At one extreme, for example, are earthquakes, which cannot now be predicted; at the other are floods, which in some conditions can be predicted based on hydrological and hydraulic models and by monitoring hydrometeorological parameters. But that uncertainty (objective) has enormous impact on the social perception of the risk (subjective) and in mobilizing political intent. As will be discussed below, resettlement is feasible to the extent that objective assessment and social perceptions coincide. These two factors are also crucial for supporting any political decision making on resettlement. Obviously, resettlement will be more relevant and feasible in connection with phenomena whose level of unpredictability is lower. This is one of the main reasons why most resettlement processes take place in situations of "imminent occurrence" or after a disaster, when uncertainty has been reduced or eliminated by the reality of events.

Lastly, *mitigation options*, varying with each type of phenomenon, create different risk scenarios for decision making. As regards the physical aspect of the problem, options exist both to control the hazard (for example, building stabilization walls to control landslides, or establishing hydraulic protection barriers for flood control) and to reduce vulnerability factors such as exposure or resistance (for example, designing and building earthquake resistant structures). In other cases, neither controlling hazards nor reducing vulnerability is technically feasible (for example, in cases of pyroclastic flows). Resettlement is more relevant where it is not possible to technically mitigate the risk.

Resettlement is relevant, from a physical standpoint, only with regard to those phenomena where it is possible to reduce exposure effectively.

Table 2.2. Resettlement and Characteristics of Natural Hazards

Characteristic of Natural Hazards	Relevance of Resettlement
Spatial distribution	The larger the hazard's area of influence, the larger the exposed population and the greater the complexity of resettlement programs.
Impact energy	The greater the impact energy, the greater the vulnerability of the population, the less the mitigation potential, and the greater the relevance of resettlement.
Forecast uncertainty	The lower the level of uncertainty, the greater the pertinence of resettlement.
Mitigation potential	Where there is least potential for mitigation through other risk reduction measures, resettlement becomes the only option.

Source: Ramírez F.

Resettlement and the Type of Natural Hazard

Since each natural hazard has different characteristics, resettlement is not always an appropriate measure. The pertinence of resettlement in connection with the most frequent natural hazards is discussed below.

Earthquakes

Seismic phenomena generally involve large areas of land. Depending on the scale and depth of each specific event, movements may extend from tens to hundreds or thousands of kilometers around the fault line (epicenter). Seismic hazards and risks, as latent conditions, stem from a combination of the likelihood of earthquakes and seismogenic sources³ and are therefore distributed spatially over very large land areas constituting much or all of a country's territory. Mitigation potential is limited to controlling vulnerability, since man cannot control the seismic phenomenon (the hazard). As regards exposure, it may genuinely be impossible to relocate all populations, cities, and infrastructure to "earthquake-free" areas which, for example, do not exist in many Central and South American countries.

Therefore, the aim of reducing seismic vulnerability is essentially to increase the resistance of the exposed elements and the resilience of governments and exposed communities. The state of the art enables the behavior of rocks and soil during earthquakes to be modeled; these models help to determine the characteristics that surface structures (houses, buildings, roads, networks, etc.) must have in order to resist the movement without major damage. Resilience is the development of response and recovery capacities by means of emergency and contingency plans and citizen education, among many other things. To summarize, regarding seismic phenomena, the exposure to hazard is controlled through the design and construction of structures in accordance with the location's specific seismic resistance requirements. Therefore, as a general criterion in this case, resettlement of the population is not pertinent.

There are exceptions in specific cases, including communities built on highly liquefiable soils such as beach areas,⁴ and highly precarious manmade dumps, such as informal dumps on slopes or landfills. In these cases, resettlement is a feasible option given the cost of engineering work that would be required to improve the dynamic behavior of these deposits. Most postearthquake resettlement programs are associated with problems such as these.

Volcanic Eruptions

The spatial distribution of the phenomenon is based on each volcanic output that may result from the eruption.⁵ Thus, some products, such as lava flows and pyroclastic debris flows, are usually distributed near the volcanic cone at distances ranging from hundreds of meters to a few kilometers. Pyroclastic flows and hot volcanic mud flows travel along natural drainage channels (rivers, ravines) and potentially traverse hundreds of kilometers and affect large areas. Volcanic ash may also fall over hundreds or thousands of kilometers, depending on how it is distributed by wind effect.

As for earthquakes, the mitigation potential in cases of volcanic phenomena focuses mainly on vulnerability reduction, since it is impossible to control the phenomenon.⁶ However, owing to the great impact energy of most volcanic outputs (lava flows, pyroclastic flows, hot volcanic mud flows, and pyroclastic debris flows), physical resistance by humans or surface artifacts is very low and, in this case, unlike earthquakes, resistance is not a vulnerability factor where intervention is feasible. Therefore, vulnerability reduction aims at controlling exposure and strengthening resilience. The exception is volcanic ash fall, since there is no way to control exposure by the entire population; but the resistance of buildings can be increased, for example, with canopies or collection receptacles designed to resist overload from the accumulation of this material.

In view of these facts, resettlement may be a feasible measure in areas exposed to high-impact volcanic outputs, such as those mentioned above. This is not the case in managing the disaster risk posed by volcanic dust storms. However, the volcanic phenomenon has other complexities impacting the socioeconomic feasibility of resettlement. The “times” of the volcanic phenomenon have a geologic scale not easily understood, and there are high levels of uncertainty in predicting them. The perception of risk is very low for a phenomenon not often seen and whose occurrence is uncertain as well, which results in social and political conditions not conducive to taking a decision to resettle population. Therefore, resettlement programs for populations exposed to volcanic hazards are usually implemented prior to eruptions, where evidence of the phenomenon leaves little doubt among stakeholders as to the imminence of the event.

Hurricanes, Storms, Gales, and other Hydrometeorological Phenomena

The spatial distribution of hurricanes, storms, gales, and other hydrometeorological phenomena varies widely by the type and geographic location of the event. They reflect both global processes and local climatological conditions. Hurricanes are phenomena that may, from their formation, follow paths hundreds of kilometers long and whose direct area of influence may be several kilometers wide. Although they develop in specific regions, such as Central America and the Caribbean, their main characteristics (path, speed, and direction) change from one event to another. In any case, they affect vast areas, both at sea and on land. Hurricanes create heavy rain, high wind, and coastal storm surges in the area, which, in turn, may trigger landslides, floods, and structural failure, among other phenomena.

The perception of risk is very low for a phenomenon not often seen and whose occurrence is uncertain as well, which results in social and political conditions not conducive to taking a decision to resettle population.

In the case of events of such magnitude, the aim of the mitigation options is to reduce vulnerability through measures that combine greater resistance of built elements to the direct impact of rain, wind, and storm surge, thus controlling factors contributing to floods and landslides (for example, stabilization measures, hydraulic barriers), with increased government and community resilience. Therefore, resettlement is not in itself an action utilized to reduce exposure to hurricanes. In that regard, two points should be clarified: First, resettlement programs that are typically promoted following hurricanes seek to control exposure to landslides and flooding, rather than to the hurricane itself. Second, since the phenomenon may be monitored early on (from formation), its path may be predicted hours or days in advance, making it possible to activate emergency and contingency plans, which usually include temporary evacuation of the population. This is a temporary contingency measure not equivalent to permanent resettlement.

Floods

Floods are a reflection of specific watershed dynamics. Therefore, their occurrence is governed by both climatological conditions and local watershed characteristics. Like other natural phenomena, floods in each region create frequency/intensity ratios in which low-intensity events occur frequently and high-intensity events infrequently. In spatial terms, their coverage varies widely, from those generated by large rivers that affect thousands of square kilometers, to small floods from overflowing tributaries that affect tens of hectares. In any case, floods may be considered local events, unlike earthquakes, volcanic eruptions, and hurricanes.

There are many ways to reduce flood risk that involve controlling the phenomenon and reducing vulnerability. Water-level control, comprehensive watershed management, land use regulation, and watershed protection are some of the many mitigation measures.

In general, floods caused by overflowing rivers are not sudden phenomena. They spread gradually into low-lying areas. Impact energy varies by type of flood—either slow, or else rapid (torrential), as from overflowing rivers, ponding,⁷ or failure of a protective or storage structure—and depending on the solid content carried. Additionally, the phenomenon is easily perceived by communities, and agroforestry activities are often organized in accordance with flood-drought cycles.

There are many ways to reduce flood risk that involve controlling the phenomenon and reducing vulnerability. Water-level control, comprehensive watershed management, land use regulation, and watershed protection are some of the many mitigation measures. Therefore, resettlement is seldom implemented as a result of flood risk. However, it is a relevant measure in some risk conditions; the “flood area” concept is used very broadly when defining “acceptable” risk levels because, depending on the frequency period taken into account for such areas, risk levels may vary widely.⁸ However, for purposes of watershed management and protection and risk management, it is necessary to define the limits of the watershed, lakes, and buffer zones whose area is included in the hydric structure, and therefore within which risk may be considered “unmitigable.” Critical points where overflow first occurs or where flooding is rapid or torrential are examples of cases where resettlement is relevant.

Lastly, it should be mentioned that this is a phenomenon where social assessment of the risk is highly variable, flexible, and changing. In both formal and informal land use processes, areas that are part of the natural hydric structure are modified according to the development requirements.

Landslides

Landslides are local phenomena typically affecting small areas on the order of a few to tens of hectares.⁹ Their spatial distribution varies depending on the fault mechanism (for example, rock falls, earth/mud flows, landslides, creep), which determines speed, path, distance traveled, and volume displaced, among other characteristics. Some are sudden, high-speed processes, such as rock falls and mud flows; others are very slow (deformations on the order of a centimeter per year), such as creep. Given the physical impact of landslides, man and built elements in general (buildings and infrastructure) are highly vulnerable, since resistance to impact and deformation is very low. Therefore, risk management actions are targeted primarily at hazard control, for example, landslide stabilization through engineering works and watershed reclamation plans; where this is not feasible, the aim is to reduce exposure by relocating the exposed population and infrastructure. Since human activity (for example, deforestation, stream course alteration, excavation) is another factor triggering landslides,¹⁰ both structural stabilization measures and resettlement programs should be supplemented by awareness strategies and assumption of responsibility for the uses and new occupation of the at-risk area.

In every case, landslides are phenomena for which numerous technical control and mitigation options exist. However, in the case of large, environmentally degraded hillside areas—where differing instability and erosion processes are under way and which are also highly urbanized—mitigation options will be severely limited owing to the scale of works required, governmental financial constraints, and the social and cultural dynamics of the population (Ramírez and Rubiano 2009). Therefore, in landslide risk management, the notion of mitigability varies widely depending on the economic, social, and political context. Landslide is without doubt one of the risks very often involving settlement programs.

Tsunamis

Tsunamis are coastal phenomena, impacting wide areas—from tens of meters to several kilometers, depending on wave height and speed. They are secondary phenomena, usually resulting from maritime disturbance caused by an earthquake. One of their peculiarities is that when the magnitude of a tsunami is high, the waves can travel thousands of kilometers through the sea, simultaneously affecting several countries or even continents.

A tsunami has very high impact energy and causes major destruction in affected areas. Populations and most buildings are physically highly vulnerable to this phenomenon. In general, it is an infrequent phenomenon, so that societal assessment of its risk is low.

For tsunami risk, the control strategy focuses on implementing early warning systems and emergency and contingency plans that ensure timely evacuation of the population. Following the tsunami in Asia (December 2004), there was much debate about whether population resettlement and infrastructure relocation should be part of the reconstruction strategy. As in the case of volcanic risk, the relevance of resettlement is subject on the one hand to such assessment as is made by each region and territory regarding options for the use and occupation of such areas and, on the other, the actual capacity

Risk management actions are targeted primarily at hazard control, for example, landslide stabilization through engineering works and watershed reclamation plans; where this is not feasible, the aim is to reduce exposure by relocating the exposed population and infrastructure.

or regions or territories to implement, maintain, and operate early warning systems. Processes of this nature often face, *ex ante*, obstacles involving societal and political perception and assessment of the risk.

Table 2.3. Relevance of Resettlement by Type of Natural Hazard

Hazard	Summary
Earthquakes	Because they impact very large areas, there is no possibility of hazard control. Earthquake vulnerability reduction entails intervention to strengthen resistance of buildings and community resilience. As a general rule, resettlement is not relevant. Exceptions involve areas of highly liquefiable soil and/or areas of highly precarious manmade dumps.
Volcanic eruptions	The phenomenon's spatial distribution depends on each volcanic output that may result from the eruption. No hazard control is possible. As a general rule, resettlement is relevant in connection with high-energy impact elements (lava, pyroclastic flows, and hot volcanic mud flows). It is not in cases of dust storms. However, difficulties of implementation exist owing to the "times" of eruptions and their unpredictability.
Hurricanes and related events	As a group, they impact large areas. On land, they manifest themselves as heavy rain, wind, and coastal storm surge. The main phenomena they trigger are floods and landslides. As a general rule, resettlement is not relevant to reduce the risk of hurricanes. It is used to reduce exposure to flooding and landslides generated by the hurricane. Temporary evacuations effected in implementing early warning systems are not equivalent to permanent resettlement.
Floods	These are local phenomena, although some affect an entire region (thousands of square kilometers). Many risk reduction options exist that involve controlling the phenomenon and reducing vulnerability. Resettlement is relevant if it is sought to reclaim occupied areas within the natural hydric structure (watersheds, lakes, wetlands).
Landslides	These are local phenomena with widely varying spatial characteristics. Many risk reduction options exist that involve controlling the phenomenon and reducing vulnerability. However, these options should be evaluated in terms of economic, social, and political feasibility. Resettlement is relevant and utilized more often than with the other phenomena.
Tsunamis	These are spatially confined to coastal areas and are a high-impact-energy phenomenon. The relevance of resettlement depends on the local context. In general, difficulties are encountered owing to low perception of risk and unpredictability.

Source: Ramírez F.

Benefits of Preventive Resettlement

Resettlement of those living in high-risk areas can reduce the costs associated with emergency responses and reconstruction. The loss of life, infrastructure, assets, and other elements can be diminished in both monetary and non-monetary terms.

- **Human life.** By resettling those living in high-risk areas, it is possible to prevent the direct impact and costs of a disaster in terms of human lives and injuries. In so doing, indirect impacts and costs are also avoided, not only for those exposed to risk but also for society as a whole.
- **Infrastructure.** The direct costs associated with postdisaster reconstruction of houses, institutional buildings, factories, and other public and private facilities cannot be avoided with resettlement, since all those structures should be built for resettled populations. Nevertheless, indirect monetary costs and non-monetary costs may be avoided. For example, shelters will not have to be built for the population affected by a disaster, and the provision of such services as health care and education will not be interrupted. Industrial and commercial activities will also be able to proceed without interruption.

- **Assets.** Resettlement means that all private, communal, and institutional assets can be relocated to a place where they will not be damaged or destroyed. The relocation of productive assets is particularly important so that economic activities can continue, and so that the income of the population or revenue for society as a whole will not be affected. The only asset that cannot be relocated is land, which will represent a cost in resettlement.

Table 2.4 provides details on possible savings from preventive resettlement, savings that arise from avoiding postdisaster reconstruction costs. Items in green cells indicate the potential savings from preventive resettlement; the only cost that remains, compared to the costs of postdisaster reconstruction, is the direct monetary cost of building infrastructure and the land for new settlements.

Table 2.4. Savings Achieved by Preventive Resettlement vs. Potential Costs of Postdisaster Reconstruction

Impacts		Monetary		Non-monetary	
		Direct	Indirect	Direct	Indirect
Human lives	Death	<ul style="list-style-type: none"> ▪ Economic activity expected by society ▪ Funeral costs ▪ Areas for disposal of bodies 	<ul style="list-style-type: none"> ▪ Loss of income ▪ Cost of attending to survivors (widows, orphan children) 	<ul style="list-style-type: none"> ▪ Trauma for survivors ▪ Disruption of family and social ties 	<ul style="list-style-type: none"> ▪ Social impacts on survivors (widows, orphan children)
	Injuries	<ul style="list-style-type: none"> ▪ Medical expenses ▪ Loss of work days 	<ul style="list-style-type: none"> ▪ Loss of employment and income 	<ul style="list-style-type: none"> ▪ Injuries, disabilities 	<ul style="list-style-type: none"> ▪ Psychological consequences
Infrastructure	Home	<ul style="list-style-type: none"> ▪ Loss of investment ▪ Cost of repairs and reconstruction ▪ Rubble removal costs 	<ul style="list-style-type: none"> ▪ Cost of temporary housing ▪ Loss of net worth ▪ Loss of access to credit 	<ul style="list-style-type: none"> ▪ Loss of shelter 	<ul style="list-style-type: none"> ▪ Psychological and social consequences
	Communal facilities (churches, parks, community centers)	<ul style="list-style-type: none"> ▪ Loss of investment ▪ Cost of repairs and reconstruction ▪ Rubble removal costs 	<ul style="list-style-type: none"> ▪ Cost of temporary facilities 	<ul style="list-style-type: none"> ▪ Loss of access to facilities and services 	<ul style="list-style-type: none"> ▪ Disruption of social activities
	Public installations (medical care facilities, schools, sport and recreation centers, etc.)	<ul style="list-style-type: none"> ▪ Loss of investment ▪ Cost of repairs and reconstruction ▪ Rubble removal costs 	<ul style="list-style-type: none"> ▪ Cost of constructing or adapting temporary installations to deliver services ▪ Total or partial cost of loss of services 	<ul style="list-style-type: none"> ▪ Loss of access to facilities and services, interruptions in education, delays or interruption in health care services, etc. 	<ul style="list-style-type: none"> ▪ Reduction of human capital, increased morbidity rate
	Structures for productive activities (industry, trade, services)	<ul style="list-style-type: none"> ▪ Loss of investment ▪ Cost of repairs and reconstruction ▪ Rubble removal costs 	<ul style="list-style-type: none"> ▪ Loss of net worth ▪ Loss of income ▪ Decline in productivity ▪ Unemployment ▪ Disruption of production chains ▪ Increased cost of transporting goods from external supply zones 	<ul style="list-style-type: none"> ▪ Reduction in the supply of goods and services to the population. 	<ul style="list-style-type: none"> ▪ Potential social conflicts

Source: Correa 2011.

Note: Items in green cells indicate the potential savings from preventive resettlement.

Continues

Table 2.4. Continuation

Impacts		Monetary		Non-monetary	
		Direct	Indirect	Direct	Indirect
Assets	Land (private, communal, public)	<ul style="list-style-type: none"> Loss of investment 	<ul style="list-style-type: none"> Loss of economic activities related to the use of land 	<ul style="list-style-type: none"> Loss of identity and belonging 	<ul style="list-style-type: none"> Psychological and social consequences
	Other private assets	<ul style="list-style-type: none"> Loss of savings, IDs, and personal belongings (furniture, clothing, household appliances, etc.) Replacement cost of goods 	<ul style="list-style-type: none"> Replacement of IDs and personal belongings, costs of bringing relief items to victims Loss of investment 	<ul style="list-style-type: none"> Loss of access to services Dependency on foreign aid 	<ul style="list-style-type: none"> Psychological consequences
	Other public assets	<ul style="list-style-type: none"> Loss of public property Replacement costs 	<ul style="list-style-type: none"> Reallocation of regular budget funds in order to replace assets Reduced investment in other areas 	<ul style="list-style-type: none"> Reduced expansion of coverage or provision of services in different areas 	<ul style="list-style-type: none"> Loss of human capital

Source: Correa, E. 2011.

Note: Items in green cells indicate the potential savings from preventive resettlement.

Resettlement as a risk reduction measure is the result of in-depth technical analysis to identify the most appropriate mitigation options and determine whether resettlement is the only one. It also entails a political decision and consensus among at-risk populations. The chapters that follow set out in detail the stages in identifying resettlement as a risk reduction measure, and in preparing for, planning, implementing, and evaluating it; they also discuss the use and control of reclaimed at-risk areas.

Notes

1. See World Population Prospects: The 2006 Revision; World Urbanization Prospects: The 2007 Revision.
2. Both human beings and the built environment are highly vulnerable to the direct impact of high temperature. The ultimate outcome in the first case is death, and in the second, destruction.
3. Seismogenic sources are faults or breaks in the earth's crust on the continents, mainly subduction zones between tectonic plates and volcanic eruptions.
4. Liquefaction is a phenomenon in which the soil, as a result of seismic vibration, temporarily loses its support capacity and behaves like a liquid. As a result, everything supported by it sinks. It occurs in loose, sandy, and saturated soils.
5. Volcanic outputs are lava flows, pyroclastic flows (ash, hot volcanic mud flows), and shock waves, among others.

6. Sometimes it is possible to channel a slow lava flow to reduce its impact.
7. Ponding refers to the inability of a natural or built drainage system to siphon off rainwater. It occurs typically in poorly drained urban areas.
8. The longer the frequency period, the larger the flood area and the less frequent the occurrence. Flood risk maps are usually prepared for 10-, 25-, 50-, and 100-year periods.
9. Some landslides are larger than this, involving hundreds of hectares and millions of cubic meters, but these are less frequent.
10. Rain and earthquakes are the main factors triggering or unleashing landslides.

References

- Correa, E. (Ed.) 2011. *Preventive Resettlement for Populations at Risk of Disaster. Experiences from Latin America*. Washington DC: World Bank
- Ramírez, F., and D. Rubiano. 2009. "Incorporando la gestión del riesgo de desastres en la planificación territorial." *Prevención de Desastres en la Comunidad Andina (PREDECAN)*, Lima.
- UNISDR (United Nations International Strategy for Disaster Reduction). 2009. *2009 UNISDR Terminology on Disaster*. Geneva: UNISDR. http://unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf.
- World Population Prospects: The 2006 Revision (database). Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat.
- World Population Prospects: The 2007 Revision (database). Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. <http://esa.un.org/unup>.

PART II

Phases for Preparing a Preventive Resettlement Program

Phase 1

**Formulating a Disaster Risk Reduction Plan
and Determining the Pertinence of Resettlement** *p. 31*

Phase 2

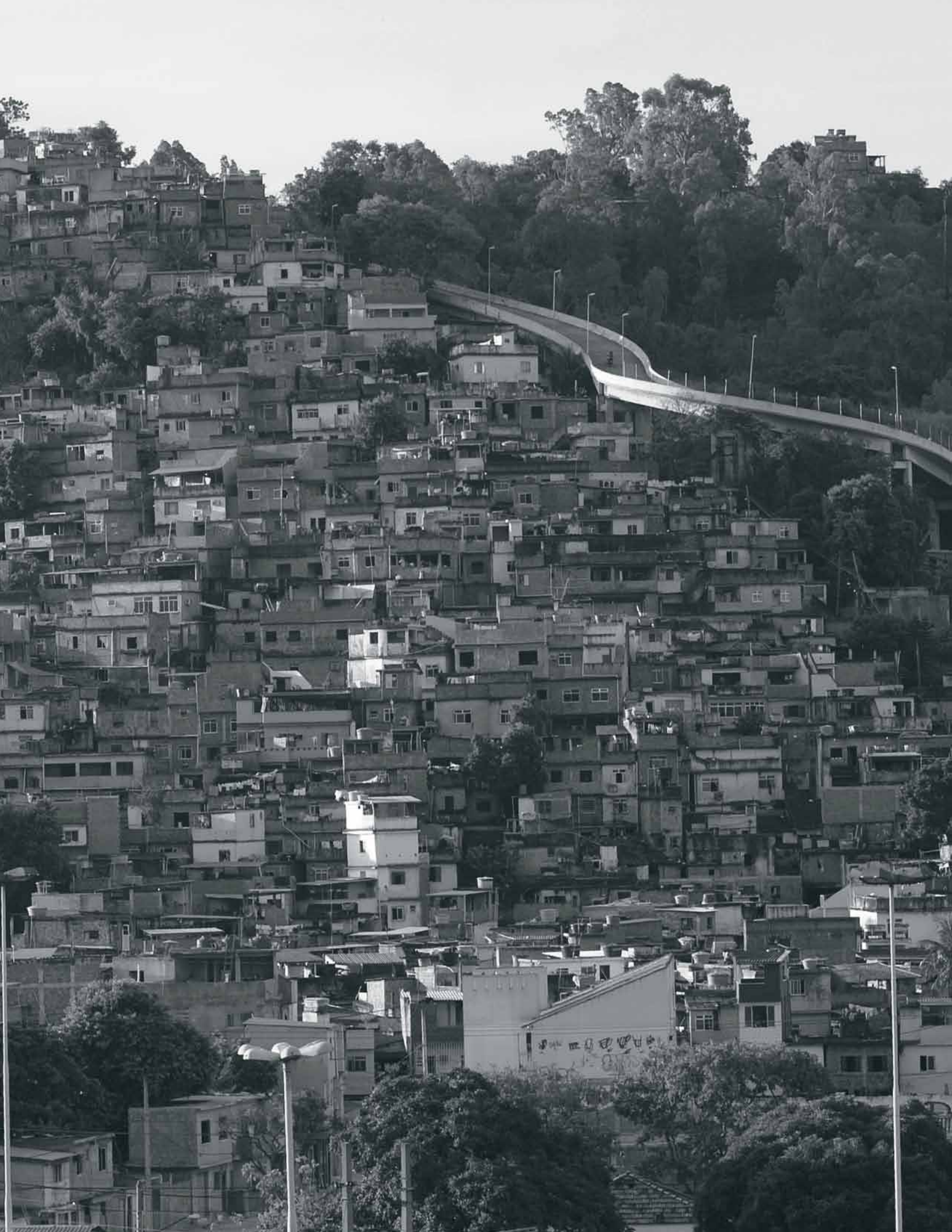
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Phase 3

Analytical Phase—Formulating the Resettlement Program *p. 69*

Phase 4

Planning Phase—Formulating the Resettlement Program *p. 99*



Formulating a Disaster Risk Reduction Plan and Determining the Pertinence of Resettlement

By Elena Correa and Fernando Ramírez

When a population is located in a disaster risk area and the relevant authorities or institutions in charge decide to reduce that risk, the first stage of the process is to assess the risk, identify and select measures for its mitigation, and formulate a strategy and plan to implement those measures.

From a technical standpoint, the risk assessment process entails making an objective assessment of the risk to which the group is exposed in order to determine the distribution of potential losses and to identify and analyze the feasible mitigation options. Risk assessment also has a subjective dimension, since conceptualization of the risk is also the result of individual, social, and cultural perceptions. Therefore, the probable level of damage or loss is perceived and processed differently by different individuals and groups. Both dimensions of risk assessment, objective and subjective, contribute valuable information for decision making and planning future actions. Discussion and determination of acceptable levels of risk is one of the essential aspects of the risk assessment process, as will be discussed below.

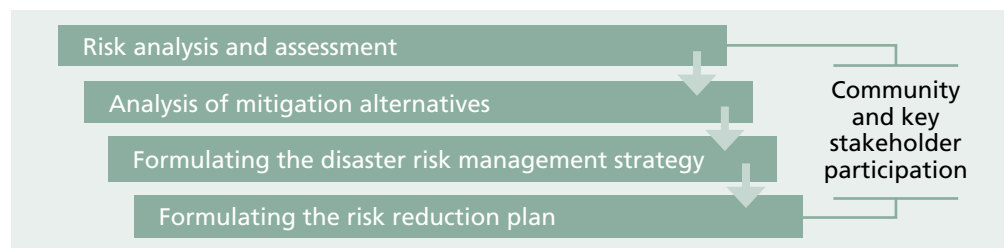
Based on the results of the objective and subjective risk assessment, the next step is to formulate the risk management strategy and risk reduction plan, which may include, if relevant, resettlement of the population.

Box P1.1. Objectives of the Formulation of the Risk Reduction Plan Phase

- To formulate the risk reduction plan in a participatory manner
- To determine the pertinence of resettlement as a preventive measure

Each of these steps entails a series of activities, described generally below (and illustrated in figure P1.1) to show how a decision for the population's preventive resettlement is taken. The activities involved in each step are not described in detail since risk assessment is not the main objective of this guide.

Figure P1.1. Formulating a Disaster Risk Reduction Plan



Source: Correa, E.

Risk Analysis and Assessment

To analyze a specific risk, technical studies must be conducted to answer questions such as these:

- What is the current status of the natural hazard (earthquake, volcanic eruption, hurricane, storm, flood, drought, landslide, tsunami) and its probable evolution over time?
- What areas of the territory are or may be affected?
- What specific population, buildings, and infrastructure are exposed?
- What are the expected consequences if the event occurs?

These studies entail the following steps:

- Hazard identification and characterization
- Identification of exposed elements
- Vulnerability assessment
- Estimation of potential losses and determination of risk levels
- Definition and express indication of the levels of uncertainty
- Determination of acceptable risk.

Hazard Identification and Characterization

Identification and characterization of the natural hazard generally take place by means of numeric models making it possible to estimate its spatial distribution, probability of occurrence, and potential impact energy. The results of such studies are usually expressed as maps and plots showing variation within the territory of one or more of the hazard's parameters (for example, acceleration in the case of earthquakes) for different frequency periods. The results presented in maps are often categorized (high, medium, low) to facilitate their interpretation by decision makers.

Identification of Exposed Elements

In this stage, the population and infrastructure (housing, manufacturing and institutional structures, schools, health facilities, and public services infrastructure, among others) located in the area potentially impacted by the hazard are identified (the elements at risk). The socioeconomic characterization of the exposed population is highly useful in evaluating vulnerability, defining mitigation measures, and formulating the risk management strategy.

These elements may be identified by satellite image, aerial photographs, existing secondary information (for example, population censuses, information from institutions providing public health, educational, or other services), or quick inventories prepared by teams of experts, local authorities, and communities. The type of instruments selected will depend on the time available and existing resources, as well as the level

The socioeconomic characterization of the exposed population is highly useful in evaluating vulnerability, defining mitigation measures, and formulating the risk management strategy.

of precision required, which may range from general evaluation to detailed inventory. More than one instrument could be used. The level of precision will in turn depend on the objectives of the studies being conducted—whether they are preliminary studies to determine at-risk elements, or in-depth studies for formulation of the strategy to manage the risk and the specific plans for its mitigation.

Vulnerability Assessment

Vulnerability assessment is a complex process employing a wide array of methods, from objective and quantitative analysis of physical vulnerability to participatory methods of assessing socioeconomic aspects of vulnerability. The physical aspects of vulnerability to be assessed address questions such as *what is vulnerable, and where*. Socioeconomic aspects, in turn, address questions such as *who is vulnerable, and how did they become so* (UNISDR 2004).

From the standpoint of objective assessment of the risk, three main components are generally taken into account in assessing vulnerability: exposure, resistance, and resilience.

Exposure refers to coincidence of an element in space and time with the space and time in which the hazard is likely to occur. *Resistance* is the capacity of the element to absorb the physical impact without major damage. *Resilience* is the capacity to recover from damage incurred. There is a direct relationship between vulnerability and exposure (the greater the exposure, the greater the vulnerability; and the reverse) and an inverse relationship between resistance (and/or resilience) and vulnerability (the greater the resistance and/or resilience, the less the vulnerability; and the reverse).

$$\text{Vulnerability} = f \frac{(\text{exposure})}{(\text{resistance, resilience})}$$

For example, of two houses exposed to a seismic hazard, the one built in conformity with seismic resistance standards will have greater resistance and therefore be less vulnerable to seismic movement than the one not built in conformity with these standards.

If two houses are exposed to a flooding hazard, and only one house is built on piles so that the floor level is elevated above the natural ground level, the difference in vulnerability is determined by the difference in exposure (as height) to the flood.

Of two families exposed to risk, the more resilient and less vulnerable family will be the one with the more sustainable and diversified income structure, greater access to social security networks and risk transfer mechanisms, and better health conditions, among other things.

Similarly, two countries could be compared: the country with a strong institutional structure, risk management policies and practices, and emergency and contingency plans will be the more resilient.

The physical aspects of vulnerability to be assessed address questions such as what is vulnerable, and where. Socioeconomic aspects, in turn, address questions such as who is vulnerable, and how did they become so (UNISDR 2004).

Determination of Risk Levels and Estimation of Potential Losses

Based on the above-mentioned three elements (exposure, resistance, and resilience), different risk levels can be determined (high, medium, low) and territorial boundaries can be more precisely defined. Defining risk levels in this way is highly useful in planning and assigning priority to mitigation measures for implementation. For example, when resettlement is identified as the only mitigation measure and there are financial limitations in resettling the entire at-risk population, intervention priorities must be assigned, meaning that new risk categories must be defined (for example, very high, high, medium, low) for purposes of planning the process. This example illustrates that risk assessment is a technical as well as a political matter, so that the pertinent institutional stakeholders, and not only experts on natural hazard, must participate in it.

Knowledge of the exposed elements and the level of risk to which they are exposed make it possible to estimate the losses likely to be incurred in the event the disaster materializes.

Knowledge of the exposed elements and the level of risk to which they are exposed make it possible to estimate the losses likely to be incurred in the event the disaster materializes. Such estimates provide important information for taking decisions regarding risk management and also help define priorities for the intervention.

Definition of Levels of Uncertainty

Technical analyses of hazard and risk have different implicit levels of uncertainty. Therefore, levels of uncertainty must be made explicit to facilitate the decision-making process.

The results of the analyses are reflected in maps, models, and diagrams that represent spatially the hazard and its characteristics, as well as levels and territorial distribution of vulnerability and risk conditions. The scope of the analyses varies widely by type of phenomenon, available information, and the specific context.

It is important to note that such studies are a means of facilitating risk-related decision making by those managing the uncertainty and assuming responsibility for the consequences.

These types of studies call for specialized human resources, major technological and economic resources, and time frames often limited by the urgency of the decision makers. Owing to the magnitude of the decisions taken, they require detailed information, not only about the territory, but also about the territory's population, existing infrastructure, and current uses. Therefore, gaps in information, or the costs of acquiring information, often limit the scope of these studies.

Determination of Acceptable Risk

Safety is a social construct regarding the minimum conditions necessary to preserve the well-being of the population in its multiple dimensions. There is obviously a general desire to prevent disaster and reduce its impact on the population, but beyond this, the issue of disaster risk becomes more complex to the extent that risk factors arise from the terri-

torial and economic development processes themselves. From that perspective, there are evident limitations on both governments and communities in correcting and controlling existing disaster risk, which is also the cumulative result of historical development forms and processes.

Thus society must define acceptable risk levels in order to address the daily realities and dynamics of risk. Acceptable risk is not necessarily an objective fact, nor is it manifested or represented in a single way. It is instead a “social contract,” explicit or implicit, that is generally the result of societal, political, and economic consensus among governments and private and community stakeholders with regard to specific risk issues.

In fact, how public risk management policy is defined and implemented is based on considerations of acceptable risk.

Discussion of acceptable risk is made complex by three of its components: assessment of the risk, uncertainty (inherent in the risk), and the consequences of decisions made. The assessment of the risk is dynamic and changes with the context, stakeholders, and their circumstances. It may be objective (using studies, maps, and models) or subjective (based on social and individual perceptions).

In practice, both objective and subjective dimensions are necessary; while the first contributes to an understanding of the issues and to methodical definition of options, the second facilitates (or complicates) consensus building and, in general, facilitates political decision making. Without exception, a degree of uncertainty exists in predicting events and their characteristics and impact due to knowledge limitations and the dynamic character of the risk factors. Nonetheless, to address risk, decisions with current and future consequences must be taken, whether or not the event materializes. Assuming responsibility for these consequences is in essence a political decision.

Acceptable risk may be defined as the level of protection that can be achieved and that is deemed relevant in the prevailing social, economic, cultural, and political circumstances of the society under consideration (Lavell 2009). What is valid for one country, society, or individual is not necessarily valid or possible for another. However, all groups must be in a position to assess the level of risk they face and to manage it to the extent possible, in accordance with their own perception of the risk and the importance they accord it.

Hence the risk assessed or evaluated should be analyzed in the context of existing forms of development or transformation and should take into account the perceptions, interests, and needs of the different stakeholders involved in order to determine acceptable levels of risk and to establish principles for making decisions regarding risk reduction and control.

A central element in discussion of acceptable risk is the concept of mitigability, that is, the feasibility of reducing a specific risk condition to socially acceptable levels (Ramírez and Rubiano 2009). Like acceptable risk, mitigation is also a relative assessment made by governments, one based on the relevance of technically feasible intervention options and according to individual government’s economic and legal circumstances, level of governance, and capacity to reach consensus with the stakeholders involved. Hence, there can be no single criterion for use in assessing and addressing similar risk issues in different

Thus society must define acceptable risk levels in order to address the daily realities and dynamics of risk. Acceptable risk is not necessarily an objective fact, nor is it manifested or represented in a single way. It is instead a “social contract,” explicit or implicit, that is generally the result of societal, political, and economic consensus among governments and private and community stakeholders with regard to specific risk issues.

territories and contexts. Analysis of mitigation measures in the context of determining acceptable risk is an especially crucial element of a decision to select measures such as population resettlement.

Box P1.2. Results of Analysis and Objective Assessment of the Risk

- The characteristics of the hazard in terms of its spatial distribution, intensity, and probability of occurrence
- The population and infrastructure exposed to the hazard
- The level of vulnerability of the exposed elements
- The estimated potential losses
- The level of uncertainty of the risk assessment
- The criteria for assigning priority to actions

Analysis of Mitigation Measures

The analysis of mitigation measures includes the identification and analysis of the feasible mitigation options.

Identification of Feasible Mitigation Alternatives

Depending on the type of phenomenon, its spatial distribution, and the vulnerability characteristics of the exposed elements, appropriate risk mitigation measures are identified and a determination made of levels of risk remaining after implementation of those measures. Some measures entail physical interventions in the territory, such as landslide stabilization works, hydraulic works to protect against floods, and earthquake-resistant structural reinforcement, among others. Some are nonphysical measures, such as education, capacity building, institutional strengthening, etc. Mitigation measures are corrective in nature since they seek to identify a solution to an existing risk condition.

Analysis of Mitigation Measures Identified

Given the social, political, and economic implications of implementing any mitigation measure, identification of feasible measures involves not just experts but also governmental authorities with institutional and political responsibility for decision making. Therefore, once mitigation measures have been identified, their technical, economic, political, and social feasibility must be assessed and analyzed. *Technical feasibility* means the possibility that a specific measure can mitigate the risk significantly and that it can be implemented. *Economic feasibility* entails comparing the costs of the different technically feasible measures to determine those most cost-effective, as well as the actual possibility of obtaining the resources required. In some cases, technical mitigation measures may prove more costly than population resettlement, thus making the latter the only possible option for mitigating the risk. *Political feasibility* refers to the level of willingness on the part of decision makers to formulate the risk strategy and the level of acceptance by those implementing the measures. *Social feasibility* refers to the potential level of acceptance of the mitigation measures by the population for whom they are undertaken.

Once mitigation measures have been identified, their technical, economic, political, and social feasibility must be assessed and analyzed.

The feasibility analysis entails contextualizing the results and recommendations of the technical studies; assessing their financial, social, political, and legal implications; assessing the political feasibility of their adoption; and, lastly, selecting and assigning priority to those options for which consensus can be reached with the affected communities. Also required is participation by sectoral institutions (for example, public services, health, and education) so that a comprehensive review can be made of the different implications of a possible solution. It is precisely in this part of the process where the notion of acceptable risk becomes evident and begins to play a role in the specific aspects of the problem.

The results of the analysis of the mitigation measures (summarized in box P1.2) should be expressed as maps, databases, and documents precisely indicating the limits of the affected areas, as well as the population, infrastructure, and economic activities involved. Such expression represents in concrete form the decisions taken in connection with the risk, although in all cases a margin of uncertainty will be present as to whether future events will exceed the demarcated areas. However, this probability is low, and the exposed population is therefore most likely within acceptable safety margins.

This is the time when a decision is made about whether resettlement of the population located in the at-risk area is the only possible option for reducing its risk. When it is not possible to intervene in the territory and control the risk factors, the only possible option remaining is population resettlement.

Given the social, economic, legal, and political implications of resettlement, it is a step that governments take only after assessing the feasibility of implementing other risk management options.

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Box P1.3. Results of Mitigation Measures Analysis

- Possible mitigation measures
- The technical, economic, social, and political feasibility of each measure
- Advantages and disadvantages of each mitigation measure
- Need for population resettlement or not

Formulating the Risk Management Strategy

The results of the analysis of mitigation measures, and the decisions made, lead to the formulation of the risk management strategy. This strategy may include different fields of action such as those mentioned in the last chapter. It may take account of a need to promote larger studies and monitor some attributes of the natural hazard, the design of early warning systems, reinforcement of existing buildings, provision of financial protection for public and private assets, the education meant to change risk-intensifying behaviors, and preparation of communities and institutions for responding to an emergency. The strategy identifies the fields of action, but specific plans and programs must be formulated for actions to be implemented.

Since the strategy focuses on one scenario or territorial unit (national, regional, watershed, municipality, etc.) for intervention where risk reduction objectives are to be achieved, it is also necessary to take into account the external factors and processes influencing the risk configuration in that specific territorial unit.

Participatory Formulation of the Disaster Risk Reduction Plan

If risk management plans are formulated without participation by groups they may impact, they will not be feasible from a social and political standpoint.

If risk management plans are formulated without participation by groups they may impact, they will not be feasible from a social and political standpoint. In addition to people's right to information and participation, all the more important when their lives may be at risk, there are other reasons why participation by communities and key stakeholders should be considered essential:

- The at-risk population plays two parts: a potential victim of the hazard if it manifests, and a major stakeholder in managing the risk.
- The population is settled within a political and administrative territory where public and private sector and civil society institutions and organizations have a presence, rendering them important stakeholders in the process.
- The perceptions of the risk by the population and key stakeholders (local authorities, directors and staff of relevant institutions, civil and religious leaders, among others) play just as important a role as the objective assessment of the risk in designing and implementing mitigation measures.

Participation turns communities and institutional stakeholders into active parties in managing the risk, and it creates opportunities to do the following:

- Understand the causes of the risk
- Estimate the potential impacts
- Recognize the exposed elements (physical and human)
- Understand the level of vulnerability
- Reach agreement on and assume acceptable levels of risk
- Recognize the need for and importance of mitigation measures
- Understand and reach consensus on how mitigation measures will be implemented
- Promote responsibility among all stakeholders for reducing the risk.

Depending on the type of hazard and the specific context of the intervention, participation may begin at the initial stages, when exposed elements are identified and vulnerability assessed. It may in some instances begin after the experts have made the objective risk assessment and defined the most appropriate mitigation measures; in these cases, the communities and relevant stakeholders will be informed of the mitigation measures and can participate in formulating the risk reduction plan.

Regardless of the time when the community and other stakeholders are involved, it should be borne in mind that active and constructive participation is achieved through the following:

- Information
- Communication
- Consultation
- Consensus
- Shared management and shared responsibility.

Clear, timely, and accurate information and two-way communication between the entity responsible for formulating and implementing risk reduction plans and the communities and stakeholders involved are the basis for establishing relationships of trust and credibility and for generating the consensus that facilitates interventions.

In view of the importance of participation, it must be duly planned and designed based on the characteristics of the communities and the different stakeholders, and should be part of the process of formulating, implementing, monitoring, and evaluating the risk reduction plan. Therefore, an interdisciplinary team must be formed composed of both risk management experts and social specialists with community development experience. The number of professionals and their training will depend on the type of risk being analyzed and the area where the intervention is to take place.

Given the sensitivity of the matter, careful consideration should be given to the time when the population is involved. Launching a participatory process without due planning is not conducive to formulating and implementing a risk reduction plan and may create panic, anxiety, and other negative effects, such as property devaluation, loss of tenants, and loss of customers for businesses. For that reason, guaranteed continuity in preparing and implementing risk reduction plans, and allocation of the required resources, are principles that should be rigorously applied by those in charge of promoting such plans.

Logical Framework Approach

In formulating the risk reduction plan, the participatory version of the logical framework approach could be utilized because of its systematic and consistent methodology in designing a plan and guiding its implementation, monitoring, and evaluation.

This approach introduces techniques for enabling and facilitating participation by the stakeholders concerned in analyzing the problem, identifying the objectives to be pursued, selecting solution options, and formulating the plan. It consists of two stages: analytical and planning. An adaptation of these two stages in the case of disaster risk reduction is described below.

Analytical Stage

In this stage the current situation and groups involved are analyzed, as well as the prob-

In view of the importance of participation, it must be duly planned and designed based on the characteristics of the communities and the different stakeholders, and should be part of the process of formulating, implementing, monitoring, and evaluating the risk reduction plan.

lem, its causes, and its effects. Additionally, the objectives pursued are defined, and the options to achieve them are compared (see figure P1.2).

Figure P1.2. Analytical Stage



Source: Correa, E.

For instructional purposes, this guide initially takes as a starting point a situation where experts have assessed the risk and identified mitigation measures, and the community and relevant stakeholders are involved in gaining more in-depth knowledge of the exposed elements, assessing their vulnerability, and formulating the plan.

Community Information and Analysis of the Current Situation

Providing communities with relevant information on the results of the studies characterizing the hazard, identifying the exposed elements, and making a preliminary assessment of vulnerability constitute the start of their participation in the process.

Providing communities with relevant information on the results of the studies characterizing the hazard, identifying the exposed elements, and making a preliminary assessment of vulnerability constitute the start of their participation in the process. For some types of recurrent hazards, such as floods, populations are fully aware of the problem and its consequences. In other cases, such as potential landslides or volcanic eruptions, making the studies available to the communities and stakeholders concerned is the first step in raising their awareness of the risk they face. Study results should be presented in a clear and educational manner, and content should be adapted to the different audiences receiving it. In some cases, depending on the size of the intervention area and the number of inhabitants, it will be necessary to hold several meetings to inform the entire population.

This is the stage when information exchange begins between the entity responsible for the studies and plan formulation on one side and the communities and relevant stakeholders on the other. That entity introduces the interdisciplinary team that will be in charge of the process and explains the reasons why the risk studies were conducted and their main results; the communities report on events and how they arose, their reactions to them, the response by local authorities and institutions, and, generally, their perception of the risk.

This information exchange may take place at institutional and community meetings. The informational content and how it is provided should be adapted to the type of audience. It is advisable for different events to be held to inform the entire community and key stakeholders. Special meetings need to be organized to inform local authorities and other institutions. For the communities, it should be borne in mind that the population is not homogeneous; therefore, meetings should be organized by age, occupation, and educational level. Meetings with homogeneous groups enable more precise knowledge to be gained of the view and needs of each group. The entire at-risk population also needs to be informed. It is not advisable to work solely with leaders, since this does not ensure that information will be transmitted correctly and, in some cases, might lend itself to manipulation of the situation.

At this stage, the work timetable for completion of the analysis stage is presented, including additional studies, if necessary, and preparation of contingency plans in the event of emergencies, if required, as well as the timetable envisaged for preparation of the risk reduction plan.

At these first meetings, two-way communication mechanisms should be established for use throughout the entire process. Depending on the characteristics of the population, it may be advisable to establish offices on site to deal with the community and to decide opening hours, hold periodic meetings, and create an e-mail address exclusively for these purposes, none of which mechanisms is mutually exclusive. What is important is to ensure that the mechanisms selected make two-way communication possible—so that the entity in charge can disseminate the relevant information, and individuals can provide information and obtain answers to their questions and concerns.

What is important is to ensure that the mechanisms selected make two-way communication possible—so that the entity in charge can disseminate the relevant information, and individuals can provide information and obtain answers to their questions and concerns.

Box P1.4. Results of Analysis of the Current Situation

- Communities and stakeholders informed of the reasons for conducting the risk assessment studies, and of studies' results
- Communities and stakeholders informed of the entity or entities in charge of the studies and of formulating the plan
- Interdisciplinary work team recognized by the communities and relevant stakeholders
- Agreements reached regarding the timetable for the different analysis stage activities
- Agreements reached regarding the timetable for formulating the risk reduction plan
- Two-way communication channels defined and agreed on

Analysis of Stakeholders and Forms of Participation

The individuals, groups, and organizations that can impact or be impacted by the risk situation and the mitigation measures implemented should be identified. The *stakeholder mapping* instrument is highly useful in identifying key stakeholders with a presence in the area as well as their characteristics, interests, and the degree of influence they can exercise in preparing and implementing the risk reduction plan. As this is an initial stage in which stakeholders are identified and approached, it may be considered a preliminary analysis. Based on the progress of the studies, the stakeholder analysis should be updated, since the level of influence or power of stakeholders may change or new stakeholders may emerge.

The different social and institutional stakeholders may include the following:

- Population located in the at-risk area, to be identified in terms of size, the age of the settlement, the political-administrative unit to which the population belongs, its urban or rural setting, the main economic activities it carries out, and its socioeconomic level, organizational levels, and different leaders.
- Regional and local authorities

- Local, regional, or national public institutions with a presence in the area (programs, personnel, resources)
- Private sector organizations (industrial, commercial, or service), to be identified in terms of activities they pursue, their length of time in the area, their role, and other relevant characteristics
- Civil society organizations (level of representativeness and organization, programs and activities they pursue, how long in existence, credibility).

When the stakeholders and their characteristics have been identified, an analysis is made of the *position* they may take and *level of power* they may have regarding the preparation and implementation of the risk reduction plan.

Positions may be categorized at four levels:

- In favor
- Undecided (stakeholder lacks an initial position, but may become in favor or opposed, depending on information received and stakeholder interests)
- Indifferent (stakeholder has presence in the area but does not identify with the population, is not a part of it, and does not have interests in the area that may be affected)
- Opposed.

Different stakeholders have different reasons for taking any of these positions. For example, local authorities who have issued building permits in the risk area may oppose formulating the risk reduction plan because they will lose credibility, and therefore, potentially lose votes in future elections. Interests of any private builders implementing housing programs in the affected area will be impacted and they may therefore oppose dissemination of the plan, or may support it if the measures improve their project's safety conditions. The populations may be undecided—on one hand, they may fear that their property values will decline, but on the other may fear the risk they confront.

Level of power is defined as the capacity of the stakeholder to impede or facilitate actions carried out under the intervention. Levels may be categorized as follows:

- *High*. Predominantly high influence over others
- *Moderate*. Moderately accepted influence
- *Low*. No influence over the other stakeholders.

Based on this information, a stakeholder matrix is prepared (see matrix P1.1). This is a cross-referenced table in which the vertical axis (the rows) lists the three levels of power (high, moderate, low) that the stakeholders may be able to exercise, and each column (horizontal axis) shows the position of each stakeholder regarding the proposed intervention (in favor, undecided, indifferent, opposed).

Matrix P1.1. Example of a Stakeholder Matrix

Level of power	Position regarding the risk reduction plan			
	In favor	Undecided	Indifferent	Opposed
High				
Moderate				
Low				

Each stakeholder is entered in the matrix, identified by position and level of power, to serve as input for the participation strategy and for formulation and implementation of the risk reduction plan.

Stakeholder analysis also makes it possible to identify different potential forms of participation by stakeholders in preparing and implementing the risk reduction plan and their potential contributions (information, technology, capital, labor, and financial and human resources, among others).

Box P1.5. Results of Stakeholder Analysis

- Key social and institutional stakeholders identified
- Stakeholder matrix developed, containing positions regarding the risk reduction plan and level of power in connection with it
- Potential forms of participation by the different stakeholders identified

Analysis of the Problem and the Risk

This is one of the most important steps in ensuring that communities and key stakeholders understand the risk situation, its causes, and possible impacts they may face in the event the hazard materializes. It also enables them to consider how they can participate in the risk management. At this stage the bases for consensus regarding the different aspects of the problem, its consequences, and its solutions are developed.

The *problem tree* technique is a useful instrument in this analysis, implemented in workshops organized with the same population groups with whom informational meetings are held (by age, gender, occupation, etc.). On cards, participants write problems, what they consider to be their causes (the roots of the tree), and their consequences, or indirect problems stemming from the main problem.

This stage of problem analysis becomes a learning activity for both participants and experts and promotes understanding of the cause-effect relationships within the risk situation. In cases where the population does not recognize the risk situation, it is highly useful to show videos with similar cases or to make field visits to the area so that individuals can identify manifestations of the problem and factors exacerbating it. Through such activities, individuals can for example see how waste disposal in rivers and vegetation destruction contribute to floods, how dumping wastewater on hillsides increases the probability of landslides, or why substandard housing will not be able to withstand earthquakes of a given magnitude. These activities also enable individuals to

This stage of problem analysis becomes a learning activity for both participants and experts and promotes understanding of the cause-effect relationships within the risk situation.

identify behaviors that must be changed, because they can understand their behaviors' consequences. Again, this is an exercise where experts, local authorities, institutions, and communities should work together.

Once consensus has been reached regarding a problem and its causes, precise identification of the elements exposed to the hazards can continue. After demarcating the at-risk area, the community can be organized to make a detailed census of at-risk persons and infrastructure and to provide information for more precise assessment of the level of vulnerability.

Joint identification of exposed elements will make it possible to identify persons, groups, or structures most vulnerable to the risk and therefore requiring priority attention.

Joint identification of exposed elements will make it possible to identify persons, groups, or structures most vulnerable to the risk and therefore requiring priority attention. Elderly persons living alone, mothers who are heads of household, families with minor children, and persons with disabilities, among others, may be identified. As regards built structures, it may be decided to give priority to structural reinforcement of schools and gathering places, such as churches, sports and cultural centers, etc.

Box P1.6. Results of Analysis of the Problem and the Risk

- Communities and stakeholders aware of the risk situation
- Communities and stakeholders understand the causes and consequences of the risk
- Communities and stakeholders committed to changing risk-exacerbating behaviors and actions
- Criteria for prioritized assistance to individuals, groups, and built structures, agreed on
- Elements exposed to the risk prioritized in accordance with their level of vulnerability

Analysis of Objectives

At this stage, the problem tree becomes an objectives tree showing the situation ultimately pursued. The main problem and its consequences (or derived problems) are reformulated from top to bottom, turning them into desirable situations (objectives). For example, the objective in this case is to convert housing and structures in a seismic risk area that are not built in conformity with technical standards into seismic-resistant housing.

Although the main objective is risk reduction, authorities and institutions may include additional objectives that enable mitigation measures to be used as a means to achieve other ends. A risk reduction plan may offer an excellent opportunity to achieve important objectives such as poverty reduction, social and human capital strengthening, and governance, which, in turn, also help reduce or eliminate risk-promoting factors.

Box P1.7. Result of Analysis of Objectives

- Consensus regarding the objectives of the risk reduction plan.

Analysis of Alternatives

The objectives tree exercise helps identify the different means of achieving those objectives. There is usually more than one way to achieve each objective. For example, in the case of floods, discussion can take place as to whether the most appropriate option is to build a floodwall, to resettle population, or to employ both measures.

At this stage a determination is made as to whether resettlement is the only possible option for reducing the risk. At this time, individuals are made aware of the risk they face, and its causes and consequences; this awareness facilitates consensus regarding this measure. Consensus as to how resettlement will be implemented is a different concern, to be developed in the following chapters.

In analyzing the different alternatives for achieving the objectives, account should be taken of the following criteria:

- Population benefited
- Equity in benefits received
- Technical feasibility
- Cost (economic feasibility)
- Sources of financing
- Sustainability of measures (e.g., whether works to be built will have to be maintained, costs and who will assume them)
- Synergies with other activities or programs being implemented.

Transparent and participatory analysis of the different means of achieving the objectives assists communities and stakeholders concerned in understanding the measures, the reasons for their selection, and the role they play in risk reduction. It also facilitates the assignment of responsibilities to the different stakeholders in implementing mitigation measures.

This stage also becomes an opportunity for the authorities and institutions with responsibility for plan formulation to link risk reduction with development objectives. For example, physical works may be built using advanced technologies or may be labor-intensive. In areas with high poverty indices and lacking sources of employment, the latter option may be more appropriate, despite involving greater administrative effort and taking longer. Slum upgrading programs are excellent examples of how risk reduction objectives can be combined with enhancing inhabitants' socioeconomic conditions.

Transparent and participatory analysis of the different means of achieving the objectives assists communities and stakeholders concerned in understanding the measures, the reasons for their selection, and the role they play in risk reduction.

Box P1.8. Results of Analysis of Alternatives

- Consensus regarding the means of achieving the risk reduction objectives selected
- Communities and key stakeholders with knowledge of the reasons for selecting the means
- Agreements regarding responsibilities in implementing the measures selected

Planning Stage

The planning stage of the logical framework also entails several activities, described below.

Formulating the Risk Reduction Plan

The organization of the different actions, in a fully consistent and coordinated manner, is ensured by formulating a risk reduction plan based on a planning methodology.

Based on the results of the analytical stage, the logical framework matrix is designed (see matrix P1.2). It incorporates the goal pursued, the different programs or components comprising the plan, the expected outcomes, the objective indicators, and their means of verification; it systematically sets out the assumptions on which normal implementation of activities must be based, and advises planners and all stakeholders involved of the impact of exogenous factors that may be crucial to progress with the plan and that are beyond control.

The matrix includes the following:

- The main objective—in this case, risk reduction—which may be incorporated in a broader development goal
- The specific objectives, which refer to the different components (in other approaches, called programs) that go into achieving the goal, such as construction of physical works, reinforcing of built structures, community education, emergency preparedness, population resettlement, etc.
- The outcomes pursued
- The activities required to achieve those outcomes (established in a logical sequence and chronological order, so that it is clear whether one activity is prerequisite to another), as well as those in charge of each activity and the time frame for its implementation
- Financial, human, and physical resources (equipment, vehicles, machinery, etc.) required to carry out the activities
- The indicators for evaluating the different components, which should be objective and verifiable
- The means of verifying the indicators—that is, the sources from which information on the indicators will be obtained

- The assumptions, which are those factors that may impact the implementation of the plan or any of the activities, but which are beyond the control of the entity with responsibility for implementing the plan. For example, infrastructure works may be planned for completion within a given time frame, but if a heavy rain season occurs, the time frame will be extended; a donation may be expected from an international cooperation agency, but if the donation is delayed, the implementation of the plan will be delayed, too. Explicitly formulating these assumptions enables communities to understand all factors that may impact normal implementation of the plan and prevent conflict from arising when problems or delays occur and the causes are not understood.

Matrix P1.2. Example of a Logical Framework Matrix

	Verification indicator	Means of verification	Assumptions
Main objective			
Specific objectives (components)			
Outputs			
Activities			
Inputs			

Sources of Financing

Countries that have made the commitment to reduce the risk of disasters have created financially sustainable mechanisms to ensure the availability of funds to prepare and implement risk reduction plans. For example, special funds have been established that receive a percentage of the property taxes, royalties, and annual budgetary allocations from the national government.

Some countries make national, regional, or local budgetary allocations, while others seek loans from multilateral organizations and also seek international cooperation. The different forms of financing are not mutually exclusive. What is important is to have the resources available as soon as a decision to prepare a risk reduction plan is made, in order to ensure that the plan is implemented properly. The timetable for implementing the plan should take account of the time required to obtain funds.

Preparation of the Risk Reduction Plan Document

Based on the logical framework matrix, the risk reduction plan document is prepared, which should develop in greater depth the information included in the matrix. An example of a disaster risk reduction plan outline is presented below:

Example of a Disaster Risk Reduction Plan Outline

1. Description of the problem	
2. Analytical Stage	2.1 Methodology (in addition to describing the methodology applied, this section should also document the information sharing, consultation, and consensus-building process with the communities and stakeholders).
	2.2 Outputs <ul style="list-style-type: none"> ▪ Area and elements exposed to the hazard ▪ Vulnerability levels ▪ Potential losses ▪ Areas and elements (individuals, groups, buildings) for priority attention

Continues

Example of a Disaster Risk Reduction Plan Outline (*Continuation*)

3. Risk Reduction Plan	3.1 Main objective	
	3.2 Specific objectives	
	3.3 Component I (or program I, depending on terminology adopted). The same content is developed for each component	<ul style="list-style-type: none"> ■ Target population ■ Activities ■ Outcomes ■ Indicators and means of verification ■ Financial and nonfinancial resources ■ Responsible units or institutions
	3.4 Monitoring and evaluation system	<ul style="list-style-type: none"> ■ Progress indicators ■ Achievement indicators
	3.5 General budget. The sum of the budget for all components, plus contingencies and administrative costs, if required	
	3.6 General timetable. By component or program and activities	

The risk reduction plan reflects the consensus and agreement built during the process and becomes a document serving as guidance for plan implementation. It must therefore be a public document to which communities and interested stakeholders have access.

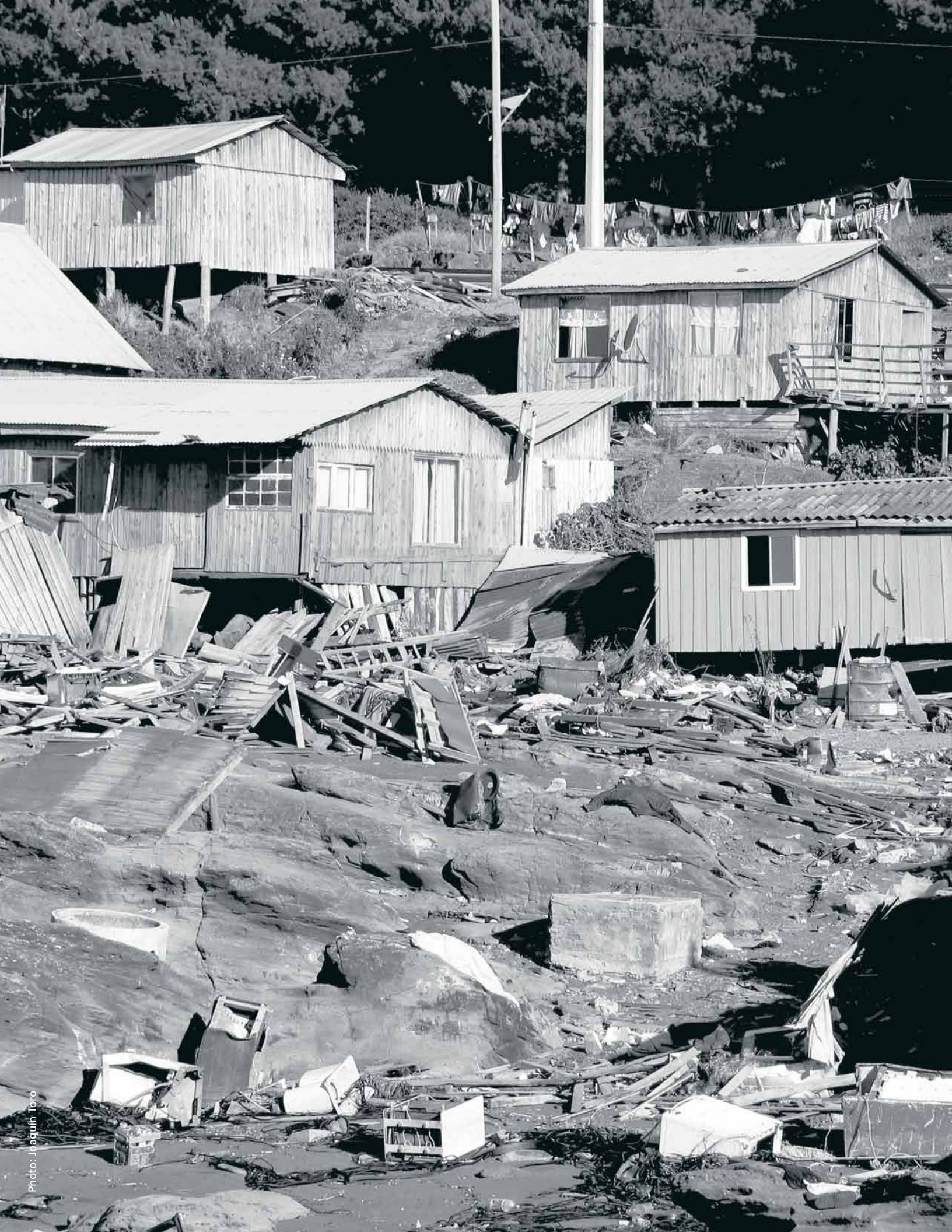
If agreement was reached regarding resettlement as a risk reduction measure, this will be one of the programs comprising the plan. This is how resettlement is incorporated in plans for comprehensive reduction of risk and for control or modification of factors that generate it. Details of the design and implementation of this program will be set out in the following chapters.

Box P1.9. Results of the Planning Stage

- The risk reduction plan agreed on by authorities, communities, and relevant institutional and societal stakeholders
- The objectives and outcomes pursued
- The activities to be carried out and those in charge of them
- The implementation time frame
- Cost and sources of financing
- A consensus-based vision of the future

References

- Lavell, Allen. 2009. Apuntes para una reflexión institucional en países de la Subregión Andina sobre el enfoque de gestión de riesgos. Lima: PREDECAN.
- Ramírez, F., and D. Rubiano. 2009. “Incorporando la gestión del riesgo de desastres en la planificación territorial.” *Prevención de Desastres en la Comunidad Andina* (PREDECAN), Lima.
- UNISDR (United Nations International Strategy for Disaster Reduction). 2004. “Conocimiento y Evaluación del Riesgo,” en *Vivir con el Riesgo: Informe mundial sobre iniciativas para la reducción de desastres*. Geneva: UNISDR.



Preparing to Plan and Implement Resettlement

By Elena Correa

Before presenting the key aspects to be considered in formulating and implementing a preventive resettlement program, it is necessary to analyze the implications of resettlement.

Impacts of Population Displacement and Resettlement

Resettlement of population is a complex process, and if it is not conducted properly can create serious problems for the people involved. A poorly planned and executed resettlement program can lead to social, economic, and cultural disasters even more serious than the natural disaster risks it is intended to prevent. Unfortunately, there are hundreds of experiences that dramatically illustrate this fact.

The ultimate objective of resettlement is to support people in rebuilding their livelihoods, which include not only housing but also their sources of income, economic activities, social relationships, access to public services, and social and cultural practices. The main achievement is the incorporation of the families or communities into the new habitat, which should ensure economic, social, and cultural conditions for the restoration of their standard of living and their normal development.

Given that one of the main objectives of resettlement for disaster prevention is safeguarding peoples' lives and assets, there is a risk of considering resettlement as a housing program. If resettlement is not conceived and planned as a multidimensional process that supports resettled people in restoring their livelihoods and helps them adapt to the new habitat, then several social and economic risks could be incurred. Another risk in planning the new settlement is to disregard the population's right to participation and its social and cultural characteristics.

For this reason, this chapter will first analyze the impacts of displacement and the dimensions involved in the resettlement process, and then present the key aspects that must be defined before starting the preparation of a resettlement program.

Displacement and resettlement have been studied especially in cases of investment projects where land must be acquired, thus compulsorily displacing inhabitants. Such displacements are considered involuntary because a decision is taken and imposed by an external agent, and individuals have no possibility of remaining at the site. The lessons learned in involuntary resettlement are highly useful in cases of resettlement for disaster prevention.

Phase 2 discusses the complexity of resettlement and the key issues that should be in place before launching the studies to design a resettlement program.

Displacement and resettlement may impact not only the population being displaced, but also the population that will continue living at the site, the host population, and the territory.

Displacement and resettlement may impact not only the population being displaced, but also the population that will continue living at the site, the host population, and the territory. It is important to identify such potential impacts so that measures can be designed to manage them.

Impacts on the Displaced Population

Relocating a population from one place to another entails loss of land, housing, and livelihood, as well as the breakdown of social and economic networks developed by individuals for their survival.

Michael Cernea (1997) has developed a *risks and reconstruction model for resettling displaced populations* in the case of involuntary resettlement. This model emphasizes that the main (though not the only) risk is impoverishment of the persons displaced, and it identifies eight ways that impoverishment comes about in a resettlement process. These are:

- Landlessness—the most serious risk if the land is the basis of productive systems, commercial activities, and livelihoods
- Joblessness
- Homelessness
- Marginalization
- Food insecurity
- Loss of access to common property
- Increased mortality and morbidity resulting from the distress caused by displacement and the conditions in the new settlement if they are inadequate
- Social disarticulation.

The model proposes that these risks must be reversed by reconstructing and improving the livelihood of those displaced.¹

Scudder (1986) indicates that the effects of displacement are so severe as to cause multidimensional distress manifested at the physiological, psychological, and sociocultural levels. The physiological component translates as increased morbidity and mortality, and increased susceptibility to disease. At the psychological level, distress manifests itself as grief and anxiety disorders; and at the sociocultural level, stress arises from the breakdown of social networks and loss in the new settlement of the functional value of some behavior patterns.

Correa (1999) analyzes how the magnitude of the impacts of displacement may vary depending on the objective and subjective conditions of the population. Among objective conditions, she mentions these:

- The type of land tenure and right to the property (for example, owner, renter, holder, squatter)
- Time lived at the site (the longer the time, the greater the impacts)

- Use of the property, which may be for housing, pursuing an economic activity (industry, business, farming, agriculture, animal husbandry, rental, etc.), or a combination of two or more
- Income from activities pursued on the property or in the area. When productive activities are affected, income is also affected, and impacts are greater. Income from productive activities may be the only source of income, or may constitute only a percentage of the income of the family unit. The greater the economic dependence, the greater the impact
- The degree to which the housing and the area enable basic needs to be satisfied. The greater the degree of satisfaction, the greater the impact
- The type of family (extended, nuclear, single parent), which determines the type of support and family networks
- The status of the person in the family (head of household, spouse, child). Heads of household, regardless of gender, will experience higher stress levels than others
- The degree of cohesion among neighbors (the greater the cohesion, the greater the impact in the case of individual resettlement, and the less the impact in the case of collective resettlement)
- The resettlement alternative planned (when individuals are aware of the alternatives and these address their needs, impacts are less).

Subjective conditions are determined by individual differences, reflected as personality patterns and personal and family history².

Impacts on the Territory

Resettlement also leads to changes in population distribution within a territory, which may have implications for its land use (in pressure on natural resources, and in demand for public and social services). These changes may also impact other populations, such as the original communities of the population (their former neighbors) and those who host the resettled population.

Impacts on the Population that Will Continue Living at the Site

In the case of resettlement for disaster risk reduction, the area at high risk that cannot be controlled by any other measure is not always entirely coterminous with the territory of the community settled at the site. For example, slum-upgrading programs could determine that the housing for relocation sits on hillsides where landslides may occur or along rivers or ravines where floods may occur, and, in the rest of the neighborhood, infrastructure works are carried out to improve public service delivery, schools, and health centers; access roads are built, and housing is improved, among other actions.

Moving some but not all members of a settlement could cause the breakdown of relationships and socioeconomic networks. Households that belong to one family may be separated; social and economic support (mutual assistance) networks, as well as access to informal credit, may be lost. The income of those who stay and pursue a productive

activity (such as service and business establishments) may be impacted if their customers are among those displaced. If the number of school-age children and the population in general declines, the entities responsible for providing education and health services may decide to close educational institutions or health centers, arguing that there are too few users.

Impacts on the Host Population

The other groups that may be impacted by resettlement are the neighboring communities of the new settlement, known as the receiving or host populations. The resettled population creates additional demands—on public services (water, power, sanitation, transportation), on education and health services, and, generally, on existing resources. The new population also constitutes an additional labor supply that can compete with local labor. Sometimes, there are differences—ethnic, religious, cultural, or socioeconomic—that may create conflict between the two groups. Therefore, if potential impacts on host populations are not properly assessed and measures are not planned to prevent, mitigate, or provide compensation for negative impacts, the likelihood of failure and conflict is very high.

Table P2.1. Potential Negative Impacts of Population Displacement and Resettlement

Affected Group	Potential Negative Impact
Displaced population	<ul style="list-style-type: none"> ■ Landlessness ■ Homelessness ■ Loss of income ■ Loss of economic networks (business, credit) ■ Loss of access to public services (water, power, sanitation, transportation, communication) ■ Loss of access to social services (health, education, recreation) ■ Loss of social networks (family, community) ■ Impact on health (increased mortality and morbidity) ■ Loss of community assets (communal facilities, churches, etc.)
Population that will continue living at the site	<ul style="list-style-type: none"> ■ Loss of income (customers, tenants) ■ Loss of economic networks (business, credit) ■ Poorer-quality public services (water, power, sanitation, transportation, communication) ■ Loss of access to or poorer-quality social services (health, education, recreation) ■ Loss of social networks (family, community)
Host population	<ul style="list-style-type: none"> ■ Greater competition for jobs and resources ■ Poorer-quality public services (water, power, sanitation, transportation, communication) ■ Poorer-quality social services (health, education, recreation) ■ Impact on health (increased mortality and morbidity) ■ Emergence of disputes

Source: Cernea, M. and Correa, E.

Preventive Resettlement Objectives

Although at-risk populations are resettled to protect their lives and assets, it should not be forgotten that poorly planned resettlement may severely impact living conditions and negatively impact other groups. Reducing disaster risk should not generate social and economic risks. In order to ensure the sustainability of the new settlements for both the population and the territorial units involved, resettlement should be planned

so that people can reestablish or improve their socioeconomic conditions in safe places, without negative impact on the population remaining at the site or the host population.

When resettlement is chosen as a disaster prevention measure, together with protecting the lives and assets of the population, another aim should be comprehensive enhancement of the quality of life of the population, beyond even the risk reduction objectives themselves. Resettlement therefore becomes an opportunity to address the needs of vulnerable populations, and to engage in poverty reduction and land use planning, in order to restore the balance that should be struck between human settlements and attributes of the natural environment.

Resettlement as a Multidimensional Process

Resettlement is a complex multidimensional process that transcends the housing aspect. It has various dimensions: physical, legal, economic, social, cultural, psychological, environmental, political-administrative, and territorial, each with different attributes, as described in table P2.2. These dimensions should be suitably incorporated in the resettlement planning and implementation process to ensure its success.

Table P2.2. Dimensions of a Resettlement Process

Dimension	Attributes
Physical	<ul style="list-style-type: none"> ▪ Individual unit of land capable of demarcation, designated by a legal term in each country (e.g., property, plot, lot). Has defined boundaries and dimensions so that a measurable surface area or area with a specific perimeter can be established. May be urban or rural. ▪ Built structures, whether for housing or to pursue an economic activity (industrial, business, service, agricultural, animal husbandry, mining, or forestry activity, among others). ▪ Public service infrastructure (e.g., water, power, transportation, sanitation). ▪ Infrastructure for social services (e.g., education and health) and community uses (e.g., recreation, sports, religious or social activities).
Legal	<ul style="list-style-type: none"> ▪ Rights to land held by persons living or working on it, and rights to structures built on it, reflected as different forms of tenure, also legally defined in each country (e.g., owner, holder, tenant, usufructuary, squatter, trespasser, etc.). ▪ Lawful or unlawful use of public services. ▪ Lawfulness of the settlement.
Economic	<ul style="list-style-type: none"> ▪ Value of the land and built structures on it. ▪ Productive activities and income levels, activities that can be pursued on the property in the high-risk area, its surrounding area, or at other sites involving daily travel to pursue them. ▪ Income from total or partial renting of a property.
Social	<ul style="list-style-type: none"> ▪ Population, family and social organization, socioeconomic characteristics, and social support and mutual assistance networks. ▪ Skills for interacting with the environment and survival strategies developed. ▪ Delivery of education and health services.
Psychological	<ul style="list-style-type: none"> ▪ Emotional bonds with housing, neighbors, communities, and the surrounding area.
Cultural	<ul style="list-style-type: none"> ▪ Practices and customs of individuals and communities, which have manifestations that are tangible (e.g., type of housing, use of space) and intangible (e.g., beliefs, preferences, tastes, etc.).
Environmental	<ul style="list-style-type: none"> ▪ Demand for and use of the natural environmental resources (water, power) and solid waste and wastewater disposal. ▪ Management of housing and infrastructure demolition materials.

Continues

Table P2.2. Continuation

Dimension	Attributes
Political-Administrative	<ul style="list-style-type: none"> Political and administrative organization of each country for its territorial management (e.g., departments, provinces, municipalities, cantons, towns, communes, neighborhoods, etc.). Authorities of the political-administrative unit.
Territorial	<ul style="list-style-type: none"> Land use and planning of the area, which determines, among other things, suitable sites for human settlement, either owing to their natural characteristics or economic and social uses defined by the competent authorities.

Source: Correa, E.

Preparing for Resettlement Planning

In planning a resettlement, adequate preparation is required so that the institutional organization is in place and the necessary mechanisms are available prior to the start of the studies required for program formulation. The objectives of the preparations stage are listed in box P2.1.

Box P2.1. Objectives of the Preparations Stage of Resettlement Planning

- To define the entity in charge of planning and implementing the resettlement program
- To define the implementation approach
- To form the work team
- To define participating entities and interinstitutional coordination mechanisms
- To design information management systems
- To design information mechanisms and establish two-way communication channels
- To design the system for handling complaints and claims
- To design dispute resolution mechanisms
- To design transparency and accountability mechanisms
- To prepare the timetable for the analysis and planning stage
- To prepare the budget for the analysis and planning stage

The risk of assigning ad hoc institutions is that once the experience has ended, continuity and knowledge gained are lost.

Defining the Entity in Charge of Preparation and Implementation

One entity should be in charge of the resettlement planning and implementation process. Some countries have institutions devoted to this task, but typically the responsibility is assigned to a specific entity, depending on national institutional organization or type of intervention to which the disaster risk reduction plan relates.

One advantage of having in place entities that specialize in resettlement is that they learn from experiences gained, and practices are progressively improved. The risk of assigning *ad hoc* institutions is that once the experience has ended, continuity and knowledge gained are lost. Therefore, when *ad hoc* entities are designated, the challenges are to systematize and document experiences so that lessons learned are not lost, and to ensure continuity where resettlement involves lengthy periods of time.

Defining the Implementation Approach

A decision should be made as to whether the entity in charge will implement the entire process directly or whether services will be engaged for some or most resettlement process activities. In some cases, services will be engaged to prepare socioeconomic studies and censuses, or for social management or housing construction. In some countries, there are nongovernmental organizations (NGOs) or consulting firms specializing in resettlement. Regardless of the implementation approach chosen, the quality and quantity of human resources must be ensured for effective planning and implementation of the resettlement.

If a decision is made to engage the services of specialized organizations or firms for resettlement planning and implementation, the respective terms of reference should be prepared and the selection and hiring process defined in accordance with national norms. The timetable of activities should take account of the time required from preparation of the terms of reference until signature of the contract and the start of work by the organization selected.

Forming the Work Team

Resettlement as a multidimensional process calls for participation by interdisciplinary teams. The number and type of professionals will vary depending on the characteristics and size of the population to be resettled, its spatial distribution, and the resettlement approach implemented.

The interdisciplinary team is usually composed of social scientists with community development experience, attorneys, architects, engineers, economists, and information system specialists. A coordinator is required to direct and supervise the process.

Each social specialist (the term refers to a professional in the social sciences with an expertise in social or community development) may have responsibility for 60 to 100 social units (households, businesses, industries, other productive units), depending on the resettlement implementation timetable. Given that a property can have multiple uses (for example, housing and productive activities such as industry, commerce, service, agriculture, etc.), the term “social unit” refers to a group of people comprising a “unit of use” who identify themselves as a unit and could be differentiated from others. Thus, the social units can be households (when the use is housing) or a specific productive activity (industry, business, agriculture, etc.). It is possible to find more than one social unit in a property. For example, a property has an owner who lives there (social unit 1), the owner rents part of the house to another family (social unit 2) and has a business on the ground floor (social unit 3).

Assigning one social specialist to a specific number of families or social units has proven a useful strategy in resettlement processes. The relationship established between the specialist and the individuals makes it easier to obtain reliable information on the families’ socioeconomic conditions. Moreover, in-depth knowledge of their needs and expectations helps individuals reduce the stress associated with the displacement process, enables vulnerable groups requiring differentiated assistance to be identified,

Resettlement as a multidimensional process calls for participation by interdisciplinary teams. The number and type of professionals will vary depending on the characteristics and size of the population to be resettled, its spatial distribution, and the resettlement approach implemented.

helps prevent intervention by opportunists seeking to take advantage of families or entities, and is the only way to maintain control of the process.

If the entity responsible for the process decides to engage services for resettlement planning and implementation, it should have a core team of technical professionals and social specialists who understand the process and can direct it. It should also make sure that the organizations engaged have a sufficiently large team of specialists with appropriate professional profiles and that there is continuity of participation by team members. Changes in professionals are traumatic for both communities and entities.

Given the interdisciplinary nature of the team and the specificity of the subject of resettlement, team members must be trained so that they can perform their work effectively.

Before selecting professionals, a profile should be prepared with the characteristics they must have and requirements they must meet. Given the interdisciplinary nature of the team and the specificity of the subject of resettlement, team members must be trained so that they can perform their work effectively. Training must include at least three fundamental subjects:

- **The risk reduction plan.** The team members must have a full understanding of the risk assessment and vulnerability studies conducted and the process of selecting mitigation measures, including population resettlement. They must know which entities have participated in the process thus far, and their roles. It should be borne in mind that the resettlement planning and implementation team is the direct link with the communities and provides them with information, so that team members must have in-depth knowledge of the disaster risk reduction plan.
- **Population displacement and resettlement.** If the professionals have not worked in resettlement processes before, they must be provided with training on the characteristics of a resettlement process and the impacts of resettlement on those displaced, those still living at the site, and the host population. This will enable them to identify more precisely the impacts on each family and the population as a whole and to understand their responses. Additionally, an understanding of the psychological process undergone by those being displaced and resettled is essential to understanding their reactions and knowing how to handle them. Responses ranging from depression to aggression may arise, but understanding the causes of such behaviors is essential for providing support and handling difficult situations.
- **Emergency response.** Risk management experts should prepare a contingency plan in the event the hazard materializes, as will be discussed below. Team members should be familiar with the plan and assume their roles in its implementation, should this become necessary.

Depending on the characteristics of the area where the intervention is taking place, the type of hazard to which the population is exposed, and its socioeconomic characteristics, other specific matters may be defined for inclusion in the training provided for the work team.

Defining the Participating Entities and Interinstitutional Coordination Mechanisms

The multidimensional nature of resettlement calls for participation by different institutions in sectors such as housing, education, health, public services, and social assistance.

Therefore, all institutions must be identified that may play a part in planning and implementing the resettlement program—from those that are to monitor the risk and implement early warning systems to those that are to provide education and health services to the population following resettlement. Table P2.3 shows institutions typically participating or having a role in a resettlement process.

Table P2.3. Institutions Involved in Resettlement for Disaster Risk Reduction

Institution/Sector	Role In Resettlement Process
Risk Management (Emergency and disaster prevention and relief)	<ul style="list-style-type: none"> Monitors the risk in the intervention area and manages the early warning system to determine whether the population must be moved on an emergency basis, even before resettlement housing options are available (temporary resettlement). Issues a technical opinion regarding the uses that may be made of the at-risk area after the population has been moved.
Planning	<ul style="list-style-type: none"> Regulates land uses, making it possible to identify areas suitable for human settlement and uses of the at-risk area to be reclaimed.
Housing	<ul style="list-style-type: none"> Participates in obtaining the housing supply for the population to be resettled.
Health	<ul style="list-style-type: none"> Provides health services to the population in the at-risk and resettlement areas. Actions must be coordinated for changing the health service jurisdiction when a group is moved from one place to another. Participates in addition or expansion of health centers in the resettlement area, and in assigning and equipping human resources, if required. Provides emergency assistance if the hazard materializes.
Education	<ul style="list-style-type: none"> Provides education services for the population in the at-risk and resettlement areas. Actions must be coordinated to ensure that there are school places in the resettlement area for the school-age children. Participates in addition or expansion of education centers in the resettlement area, and in assigning and equipping human resources, if required.
Public Services	<ul style="list-style-type: none"> Provide power, water, sanitation, refuse collection, transportation, and communication services in the at-risk and resettlement areas. A review should be made with the service delivery companies of the status of user accounts and payment agreements reached in the case of users in arrears. Actions must be coordinated for the cancellation of domestic public service accounts immediately after the population is moved so that accounts do not remain active and the population does not incur costs. May build public service network infrastructure in the new settlement. Whether this is done by the entity in charge of the resettlement program or construction services are engaged, the technical standards of the entities responsible for each service must be met. Actions to install and deliver services in the new settlement must be coordinated.
Social and Economic Programs	<ul style="list-style-type: none"> Implement different types of social programs (such as for the elderly, children, or women) and offer training, credit, and productive projects, among other services. These programs may be useful in reestablishing and improving the socioeconomic conditions of the resettled population.
Control and Oversight Entities	<ul style="list-style-type: none"> May participate as observers of the resettlement program formulation and implementation process. These organizations are autonomous and independent entities of the branches of government that represent society in overseeing proper use of public resources and assets, the conduct of public officials, and protection of the public interest.
Conciliation and Dispute Resolution Centers	<ul style="list-style-type: none"> Help to resolve dispute arising from resettlement. These public agencies or civil society organizations typically specialize in one type of dispute (e.g., within families, between neighbors, or between private individuals and government entities).

Source: Correa, E.

The institutions described in the table above do not exist in every case, or it may be the case that some, such as those in the housing area, are not able to participate in the resettlement process, either because they do not have programs for the type of population to be resettled, or because their programming is inconsistent with the resettlement timetable.

It is important to stress that the degree of institutional participation should not be overestimated or underestimated. When participation is overestimated, relationships among institutions deteriorate, and when it is underestimated, problems may arise in resettling the population properly.

Whether different institutions participate will depend on whether there is need for their involvement, as determined by either the size of the population to be resettled or the resettlement approach. It is important to stress that the degree of institutional participation should not be overestimated or underestimated. When participation is overestimated, relationships among institutions deteriorate, and when it is underestimated, problems may arise in resettling the population properly.

Therefore, the decision about which entities participate depends on the genuine need for their involvement in the program. That said, civil society organizations implementing social, economic, or housing programs could also participate in the resettlement program.

With each entity, consideration should be given to its type of participation and to the timing of its intervention in the process. In many cases, a contract or agreement must be concluded to formalize its participation and its relationship with the entity in charge of the resettlement. These documents, signed by the representatives of the two entities, establish the responsibilities of each, as well as the financial, physical, and human resources to be allocated. In countries where turnover of public officials is high, such agreements are very important in ensuring the continuity of activities and allocation of the respective resources.

Mechanisms to coordinate the participation by different institutions, mechanisms, and instruments must be established in order to do the following:

- Ensure that activities are planned and implemented in a timely manner (for example, ensuring that after the move, school-age children are enrolled in schools near the resettlement site so that they do not lose the school year)
- Avoid duplication of functions and resource waste
- Create synergies for the furtherance of results

Among the most common coordination mechanisms are interinstitutional committees with participation by all institutions involved in the resettlement process. It is important for each entity to designate to the committee a representative with decision-making authority, who remains throughout the process. These committees should draw up their own rules of procedure, setting out how often meetings will be held, how decisions will be made, how agreements and decisions will be recorded (minutes), and how and where documents generated will be filed. By these means, all institutions will be aware of the stage of the process and will be able to plan their activities appropriately. A system may also be created to record information on the different projects comprising the resettlement program, so that all institutions can expeditiously obtain information on the process.

Designing Information Management Systems

In implementing a resettlement program, information must be organized and systematized for each social unit (household, business, industry, service establishment, etc.) to be moved, and according to the different dimensions (physical, legal, social, economic) involved.

As shown in table P2.2 above, the physical dimension includes information on real estate, private and institutional built structures, and public service infrastructure. The legal dimension includes information on land rights, relationships with public services, and the lawfulness of the settlement. The economic dimension includes the sources and levels of income of the individuals and the value of their property. The social dimension includes the number of persons along with their socioeconomic characteristics, social networks, and access to education and health services.

All this information must be recorded for each social unit for systematization of the information on their characteristics and social conditions. Recording information makes it possible to monitor the implementation of the resettlement program and to evaluate whether initial standards of living were restored or raised.

Managing and systematizing this amount of information is complex, so that it is advisable for an information system to be designed that links the geographic information (property, location) and socioeconomic data of each social unit. To that end, systems experts should work with professionals of other disciplines (attorneys, architects, engineers, economists, agronomists, social specialists, etc.), so that all variables required are included.

Designing Information Mechanisms and Two-Way Communication Channels

The communication mechanisms established in the preceding stage are insufficient for planning and implementation of the resettlement program, since they are targeted at the community as a whole, especially at the individuals and stakeholders for whom disaster risk reduction measures will be implemented but who will continue living in the area.

At the time a decision is made to resettle a specific group of people, this group's information needs and interests become different from those of the people who will continue living at the site because their risk can be reduced with other types of measures. Whereas members of the latter group are interested in knowing the extent to which risk reduction measures have been implemented and in participating in the process, members of the former are concerned only about the place where they will go to live, the conditions in which they will make the move, the time of the move, the new school for their children, reestablishment of their income—in short, they are concerned only with rebuilding their lives.

At the time a decision is made to resettle a specific group of people, this group's information needs and interests become different from those of the people who will continue living at the site because their risk can be reduced with other types of measures.

Community meetings should be held only for important milestones. Frequent meetings should be avoided to avoid deterioration in relations with communities and loss of interest.

Therefore, special information and communication mechanisms must be established for those who will participate in the resettlement program. The recommended information and communication mechanisms are as follows:

Community Meetings

Community meetings should be held only for important milestones. Frequent meetings should be avoided to avoid deterioration in relations with communities and loss of interest. Community meetings should be held at different points in the process:

They should be held in launching the program, to

- introduce the team of professionals, and to explain the role of each and the distribution of social specialists by the geographic area to which each is assigned;
- inform the community of activities to be carried out in preparing the resettlement program, the objective of each activity, the type of information to be compiled and its purpose, the timetable envisaged for information compilation, possible resettlement alternatives that will be explored, and the schedule of upcoming meetings and matters that will be discussed; and
- establish communication channels through which information may be obtained and provided (for example, reaching agreement on the approach to implementing the other mechanisms that will be discussed below).

Meetings should be held upon completion of the census and socioeconomic study, to

- present and validate the results of the census and socioeconomic study; and
- establish the census closing date.

Meetings should be held when the resettlement alternatives have been identified, to

- present the different alternatives, their advantages and disadvantages, and the rights and obligations in connection with each;
- reach agreement on how more detailed information can be obtained on each alternative (visits to sites, etc.);
- establish the time communities will have for choosing between the alternatives offered; and
- define the types of participation, depending on the alternative selected.

Finally, meetings should be held during the preparation and implementation of the resettlement program to provide information on

- the progress and status of the different activities;
- budgetary execution; and
- problems faced and potential solutions.

Offices or Service Centers in the Area

In addition to establishing an office to serve the community as the risk reduction plan in the intervention area is prepared, an office must also be established exclusively to serve the population to be resettled, since, as mentioned above, the type of information and attention required by this population are different. In this office, the professional team will be available to see individuals during the hours agreed on at the community meetings.

These offices or service centers must meet the following requirements:

- They must be readily accessible.
- No cost must be involved in visiting them (that is, no payment or transportation costs).
- Service must be provided at times when people are free to visit the centers so that they do not miss hours of work.

When local office hours are agreed with the community, continuous service is no longer needed. Three hours, twice a week is usually sufficient.

The office may also have graphic or written material on important matters, such as requirements to be met, the characteristics of the resettlement alternatives, housing characteristics, etc.

It is important to keep records of individuals visiting the service point and the reasons for their consultation to gain awareness of their concerns; these records, in turn, serve as a feedback mechanism to improve the mode and content of the information provided. The types of concerns and consultations also provide useful information in designing the resettlement program.

Home Visits

The social specialists responsible for a specific number of families and social units may visit families and social units in accordance with the needs of each. Some families highly vulnerable in the context of the resettlement, such as the elderly, single-parent households, or persons with disabilities, among others, require additional support.

Web Page and E-mail Address

Depending on the type of population to be resettled and whether it has Internet access, a Web page and e-mail address may be created to provide information on the status of the process and to facilitate requests for information.

Dedicated Telephone Line

When the characteristics of the population or its geographic distribution does not allow for service centers to be organized in the area, a dedicated phone line may be assigned so that people can request information, provided that the individuals operating it have all necessary information and can offer proper guidance.

In view of the risk context in which the work is being done, people must be informed of the telephone number they can call in the event of an emergency.

Designing the System for Handling Complaints and Claims

A harmonious relationship among individuals who will participate in the resettlement program and the entities involved means that any problem arising must be resolved in a timely manner rather than become a dispute.

The resettlement process is complex, and it is rare for the entire population to agree with the criteria for accessing the solutions offered, with the quality of the solutions, or with the established requirements. A harmonious relationship among individuals who will participate in the resettlement program and the entities involved means that any problem arising must be resolved in a timely manner rather than become a dispute.

Therefore, from the launch of resettlement program preparation, it is essential to have in place a system for timely handling of complaints and claims. A complaint arises when an individual seeks to have a problem resolved; and a claim arises either when an individual fails to receive an expected service or benefit, or has concerns about the quality of what was received.

Complaints and claims may arise for numerous reasons: because requested information was not provided, because of treatment received from a member of the work team, because of the amount of compensation for an individual's property (in the case of individual resettlement), because of delays in receiving housing or because of its quality, because of damages received as a result of infrastructure works being built to reduce risk, to suggest only a few.

The design of the system for handling complaints and claims should establish the procedure to be followed from receipt of the complaint or claim to the reply to the party concerned, specifying the following:

- Where to submit a complaint or claim
- How it is to be made (in writing or verbally)
- The internal procedure to be carried out in reviewing the complaint or claim (in some cases, other areas of the entity must become involved in resolving it)
- How long it will take for the party concerned to receive a reply
- The form the reply will take (writing is preferable so that both parties have a record).

It is important to keep a record of the different complaints and claims, which should include the following information:

- Date of submission of complaint or claim
- Information identifying the person filing it (identity document, address, contact information)
- Reason for the complaint or claim

- Date of reply by the entity
- Reply given by the entity.

Analysis of these records provides feedback for resettlement program planning and implementation and for the work of the work team. For example, a large number of unwarranted complaints or claims indicates deficiencies in the information being provided, and justified complaints or claims indicate problems that must be corrected.

Designing Dispute Resolution Mechanisms

In the event of failure of existing mechanisms for resolving complaints and claims by the population participating in the program, either because the individual is dissatisfied with the response received or through deficiencies in implementing the mechanisms, disputes arise. Disputes may also arise within families or social units, and among them. The potential types of disputes that may arise in a resettlement process are these:

- Within a family. Resettlement processes trigger many disputes within families and social units. For example, couples who had considered the possibility of separation see it as an opportunity to separate, and a dispute arises over who will receive the solutions offered under the program. Or some members of a family wish to take advantage of others (children of older parents, or one spouse of the other). There may also be disputes among heirs over property to be inherited.
- Between individuals with some type of right to property. Examples include individuals with title to property occupied by a holder; tenants who, upon learning that the population is to be resettled, cease to pay rent to the owner; partners of businesses, industries, service establishments, or any type of productive activity that must be moved.
- Between the population to be resettled and the entity in charge of program preparation and implementation. Disputes that may arise include disagreements regarding the solutions included in the resettlement, the amount of compensation, inclusion in the program, and the type and quality of benefits received, among others.
- Between the population to be resettled and other entities involved in the process. Examples are disputes arising because of lack of access to services or because of charges for public services.

Therefore, for harmonious implementation of a resettlement program, dispute resolution mechanisms must be in place and must rely on third parties without interests in the process so that they are, and are perceived as, impartial. These third parties could be organizations providing dispute resolution services, which generally specialize in some of the types of disputes mentioned. They include supervision and oversight entities that can participate in resolving disputes between entities and private individuals, universities with legal assistance offices for resolving disputes between private individuals, institutions serving families that provide family counseling services, and NGOs that also provide these services.

For harmonious implementation of a resettlement program, dispute resolution mechanisms must be in place and must rely on third parties without interests in the process so that they are, and are perceived as, impartial.

When disputes arise within or among social units, the team in charge of the resettlement should carefully consider whether they can handle them or whether they should be referred to third parties in order to prevent problems in carrying out the work.

Defining Transparency and Accountability Mechanisms

Trust is built between individuals and public entities only if processes are transparent. Therefore, mechanisms must be designed that will be used to ensure transparency and accountability in the actions of all stakeholders involved.

One such mechanism is the preparation of progress reports containing the actions carried out, amounts invested, and budgetary execution. These reports may be presented at community meetings, as mentioned above, and may also be disseminated via other media, such as Web pages. The socioeconomic characteristics of the population, along with their access to and use of the different communications media, determine the media that may be used for these purposes. At the initial community meetings, agreement should be reached regarding what these mechanisms will be and how individuals will have access to the accountability reports of the entities participating in the resettlement program.

Just as mechanisms must be in place to ensure that entities are transparent and accountable to the population, mechanisms must also exist to ensure that the population is transparent and accountable to the entities.

Just as mechanisms must be in place to ensure that entities are transparent and accountable to the population, mechanisms must also exist to ensure that the population is transparent and accountable to the entities. One of the mechanisms utilized for the latter purpose is an agreement signed by heads of household and social units attesting that all information provided is truthful and setting out penalties should this not be the case.

Preparing the Timetable for the Analysis and Planning Stage

Depending on the number of people to be resettled and their characteristics, a timetable may be developed for implementing the studies needed to formulate the resettlement program (analytical stage) and for its design (planning stage).

Preparing the Budget for the Analytical and Planning Stage

When all aspects of preparation have been defined and the mechanisms designed for launch of the analytical and planning stage, the budget can be prepared for conducting the studies required and the resettlement program can be formulated. The budget should include the costs of human and physical resources (materials, equipment, vehicles, etc.), as well as of any services to be engaged.

Results of the Resettlement Preparation and Implementation Stage

When the matters discussed above have been addressed, the entity and team in charge will be ready to begin planning the resettlement. Box 4.2 summarizes what will be in place by the time planning begins.

Box P2.2. Results of the Preparations Stage of Resettlement Planning and Implementation

- Entity in charge of resettlement program planning and implementation designated
- Approach to resettlement planning defined
- Work team selected and trained
- Participating entities identified and their roles defined and agreed on
- Interinstitutional coordination mechanisms established
- Information management systems designed
- Information mechanisms designed
- Two-way communication channels identified
- Mechanisms for handling claims and complaints designed
- Dispute resolution mechanisms established
- Transparency and accountability mechanisms defined
- Timetable for the analysis and planning stage prepared
- Budget for the analysis and planning stage prepared

Notes

1. For further information, see the work of Michael M. Cernea.
2. For further information see Correa, E. 1999.

References

- Cernea, Michael M. 1997. "The Risks and Reconstruction Model for Resettling Displaced Populations." *World Development* 25 (10): 1569–88.
- Correa, Elena. 1999. *Impactos socioeconómicos de grandes proyectos. Evaluación y Manejo*. Bogotá: Editorial Guadalupe.
- Scudder, T. "Social and Economic Dimensions of Involuntary Resettlement." 1986. Institute for Development Anthropology and California Institute of Technology.



Formulating the Resettlement Program—Analytical Phase

By Elena Correa

In preparing the resettlement program as an integral part of the disaster risk reduction plan, the logical framework method described in phase 1 may be also used because of its systematic approach.

As will be recalled, that method consists of two phases: analytical and planning. This chapter sets out the content of the analytical phase as adapted to a resettlement process. The objectives of the analytical phase are listed in box P3.1.

Box P3.1. Objectives of the Analytical Phase of Resettlement Program Formulation

- To inform the community of the studies to be conducted during the analytical stage
- To establish two-way communication channels
- To analyze the current situation of the population to be resettled (via census, socioeconomic study, tenure study, and inventory of structures)
- To analyze and assess the impacts of displacement
- To classify the population by type of impact
- To define the resettlement objectives
- To select the resettlement alternatives
- To identify and assess the impacts of displacement of neighbors on the population that will continue living at the site, and to define measures to address these impacts
- To establish the potential uses of the at-risk areas after the population has been moved

Phase 3 describes the studies required to design a resettlement program, the methodology for identifying and assessing the impacts of displacement on people to be resettled and on people who will continue living at the site.

Community Information

Prior to starting any study or to compiling information on the conditions of the population to be resettled and its assets, the community involved should be informed of the different studies to be conducted, their objectives, the activities to be carried out, and their duration. The information and communication mechanisms designed in the preceding phase are used to that end.

Objectives

The objectives of community information at this stage are these:

- To reduce the stress associated with displacement and resettlement
- To establish mechanisms for relations between the community and the entity in charge of the resettlement program

Because displacement creates very high levels of stress, individuals need to hear directly from those in charge about how the process will be conducted, and they need to participate actively in it.

- To build a relationship of trust between the community and the entity in charge
- To reach agreement on mechanisms for consultation, consensus building, complaints and claims, dispute resolution, and accountability.

Target population

Information should be targeted not only at community representatives, but at all individuals living or pursuing any economic activity on the properties located in the high-risk area, or having any type of right to them (for example, nonresident owners).

Because displacement creates very high levels of stress, individuals need to hear directly from those in charge about how the process will be conducted, and they need to participate actively in it. When people are rebuilding their lives, intermediaries are not useful. Moreover, the only way that the team in charge of preparing the resettlement program can gain awareness of the situation of each family or social unit is through direct contact.

Information Mechanisms

There are several information mechanisms that can be used. A brief description of some of them and their benefits are presented below.

Community Meetings

The ideal mechanism for presenting information is the community meeting because it is a forum for open dialogue between the team in charge of formulating the resettlement program and those who will participate in it.

Planning meetings. Meetings should be scheduled appropriately. It is important to set a date, time, and place taking account of times the community will be available. An agenda should be prepared, estimating the time needed to address each topic presented; teaching aides should be prepared geared to the characteristics of the population and its educational level (audiovisual media are the most effective), and one person should be assigned for the presentation of each topic. Time must be allowed for people to ask questions and express their concerns. Where populations are large, several meetings can be scheduled for smaller subgroups to cover the population as a whole.

Topics to be discussed. At the first informational meeting, the following matters are discussed:

- **Resettlement.** The meeting may begin by acknowledging that displacement and resettlement generate great stress, anxiety, and concern, thus assuring people that the entity in charge understands what they are going through. This is the time to indicate that planning and carrying out the resettlement will be a joint process in which all parties have responsibilities to fulfill. The estimated time required to prepare studies and formulate the resettlement program, along with possible dates for the move, should be announced. Otherwise, based only on the knowledge that a move is possible, people may put their lives on hold and alter

their daily routines. (For example, some families may not enroll their children in school; others may not begin sowing or may not make urgently needed repairs to their homes, which would increase their vulnerability in reestablishing their socioeconomic conditions after the move.)

- *Entity in charge.* The institution in charge of formulating and implementing the resettlement program should be introduced, along with its nature and functions, the units comprising it, and the specific unit in charge of the resettlement program. If other organizations have been engaged to prepare the plan or conduct some of the studies required, they should also be introduced and the part they will play explained.
- *Introduction of the other entities that will participate in the program.* Information is also provided on the other entities that will participate in the program, the role they will play, and the time when their involvement will begin. Some entities that will play an important part may also participate in the meetings to report on the activities they will carry out. For example, public service companies may provide information on procedures for closing service accounts and payment plans for individuals with outstanding bills.
- *Introduction of the work team.* The work team and the different specialists comprising it should be introduced; the geographical areas to which the social specialists are assigned should be made clear at this point. This is the time when the community identifies the specialist with whom it will have direct contact throughout the process.
- *Preparation of the contingency plan.* In view of the imminent risk to the population to be resettled, information should be provided on the contingency plans being prepared in the event the hazard materializes. Since these plans involve the entire community, not only that part that is to be displaced, all community members should be reminded of the importance of participating in the preparation of the contingency plan and in the training events related to this plan.
- *Studies to be conducted in the analytical phase.* During this phase, the population census, socioeconomic and cultural study, and tenure study should be conducted, as well as the inventory of properties, housing, and built structures. An in-depth explanation should be given of the objective of these studies, the reasons it is necessary for detailed information to be compiled, what the results will be used for, and how long it will take to conduct the studies. If the population understands their nature and purpose, they will be motivated to facilitate them and provide reliable information.
- *Dates and times for information gathering.* Agreement should be reached on the dates and times for gathering the information in order to facilitate and expedite this activity. Without this agreement, people are unlikely to be at home when the social development specialist arrives to take the census, and he or she will probably have to return several times. People may also miss days of work waiting for the professional or experience unease if they do not know when he or she will visit them at their homes.
- *Required documents.* These meetings should also announce the documents that the population is to provide (for example, titles to property or documents substantiating the type of right to property) and should request that copies of these

documents be available at the time of the census. This document collection also expedites information gathering for the tenure study.

- *Agreement on the communication channels that will be used.* The different communication mechanisms identified in the preceding phase are introduced, analyzed with the community, and selected in conjunction with it. A decision is made about whether it would be useful to have an office or service center in the area and, if so, what the location and hours will be. If the community's characteristics so permit, agreement may be reached to establish an e-mail address and Web page. Also to be provided are the telephone numbers and contact sites in case of emergency.
- *Mechanisms for handling complaints and claims.* The mechanisms designed in the preceding phase to handle possible complaints and claims are presented, and an explanation given for when they should be used, what the procedures are for handling complaints and claims, and how long it will take to respond to them.
- *Transparency and accountability mechanisms.* The mechanisms designed in the preceding phase should be presented, and should be analyzed and defined. As transparency is a principle that must apply to all parties involved, mechanisms for transparency on the part of families and social units in relation to the entities (such as signing agreements to provide reliable information and to participate in any meetings convened) should also be defined and agreed on.
- *Subsequent meetings.* Agreement should be reached on the timetable and content of the subsequent meetings, the next one being held to present and analyze jointly the results of the census and the socioeconomic and title studies.

It is also advisable to provide written materials (booklets, brochures) containing the information presented, especially the most relevant information, so that people have it available at all times.

Record of participants. At the entrance to the meeting, a register should be kept of participants' names and contact information (address, telephone number, and e-mail address).

Minutes of meetings. The matters discussed at the meeting, and any deliberations, main questions, and agreements reached, should be recorded (that is, entered in minutes) to serve as a record for all parties involved.

Opening of the Office or Service Center in the Area

Based on the agreements reached at the meeting, arrangements should be made for the office or service center to be open at the times agreed on with community. Heavy investment is not required to establish these offices, as they can operate in existing community buildings, such as schools, churches, community facilities, or even private homes, since individuals willing to collaborate can always be found.

Launch of Web Page, E-mail Address

When electronic media are considered appropriate for the type of population and have been agreed on with the community, they are launched, taking advantage of the e-mail addresses collected at the community meetings.

Analysis of the Current Situation of the Population to Be Resettled

In planning a resettlement, detailed information is required on all dimensions involved in the process so that the program can be tailored to the characteristics of the population, the assets that must be replaced, and the economic activities and access to social and public services that must be reestablished, all in the context of the community's social organization and cultural patterns.

When this information is unknown, the probability of failure is very high. If housing is not tailored to people's characteristics or needs, or if they cannot continue to pursue their productive activities, they will refuse to move; or if they do, they may abandon the new housing site. Therefore, a fundamental pillar of appropriate resettlement planning is in-depth knowledge of the characteristics and conditions of the population to be resettled.

Table P3.1 sets out the required information, as well as its relevance, in accordance with the dimensions set out in the preceding phase.

Table P3.1. Information on Population to Be Resettled

Dimension	Characteristics	Content	Relevance
Physical	Individual unit of land capable of demarcation, designated by a legal term in each country (e.g., property, plot, lot). Has defined boundaries and dimensions so that a measurable surface area or area within a specific perimeter can be established. May be urban or rural.	Number and area of lots or properties impacted.	Defines the number of lots, dwellings, and structures to be replaced.
	Built structures, whether for housing or to pursue an economic activity (industrial, business, service, agricultural, animal husbandry, etc.)	Number, characteristics, and uses of existing structures, spatial area and distribution, materials used, construction finishings.	Defines the number and types of structures that must be replaced (dwellings, productive structures) Provides information for the design of new housing or for the inclusion of training activities for adjustment to the new housing if its size and characteristics differ from those of the original housing.
	Public service infrastructure (e.g., water, power, transportation, sanitation).	Type of existing public service infrastructure Public service providers	Provides information on the type of public services the population has so that they can be restored or improved. Provides information to determine whether training activities need to be included so that public services are used appropriately and efficiently. Determines the entities with which services and account cancellation must be coordinated. Provides information on family public-service-related expenditure.

Continues

Table P3.1. Continuation

Dimension	Characteristics	Content	Relevance
Physical (cont.)	Infrastructure for social services (e.g., education and health) and community uses (e.g., recreation, sports, religious or social activities).	Number of establishments and characteristics of education, health, and community centers (type of structure, capacity, coverage).	Provides information on the service infrastructure that must be replaced in the new settlement.
		Social service institutions and other related organizations.	Enables identifying the institutions that must be informed of users' resettlement.
Legal	Rights to a property or lot held by persons living or working on it, and to structures built on it, reflected as different forms of tenure, also defined in national law (e.g., owner, holder, tenant, usufructuary, squatter, trespasser, etc.).	Tenure of the land and structures built on it.	Defines the types of rights to land and structures under the country's legal framework and the right to compensation in the event land and structures are acquired. Determines whether the individual is eligible for compensation for the land. Serves as a criterion for determining resettlement alternative solutions and eligibility criteria for them.
	Lawful or unlawful use of public services.	Type of relationship with public service companies.	Defines whether public service use is lawful. Makes it possible to determine whether families and social units will incur additional costs when they are in a lawful settlement.
	Lawfulness of the settlement	Approval by the competent authorities of the existing settlement.	Defines whether the settlement is recognized by the authorities of the corresponding political-administrative division; this recognition status generally has implications regarding the types of rights that are recognized.
	Value of the land and the built structures on it.	Property valuation or assessment (land and structures).	Provides information on the amount invested by social units in their property and the amount of compensation they may receive in the event the assisted compensation resettlement alternative is chosen.
Economic	Productive activities and income levels, activities that can be pursued on the property in the high-risk area, its surrounding area, or at other sites involving daily travel to pursue the activities.	Sources of income. Economic activities pursued. Income levels.	Makes it possible to establish levels and sources of income and to analyze whether they will change as a result of resettlement; this information allows designing income restoration programs.
	Structures entirely or partially rented out.	Place where economic activity is pursued.	Provides information to determine whether expenditure at the new site can be covered from income (e.g., taxes, public services, etc.).

Table P3.1. Continuation

Dimension	Characteristics	Content	Relevance
Social	Population, family and social organization, socioeconomic characteristics, social support and mutual assistance networks.	Demography.	Provides information to determine the number and composition of the population by gender and age, and the economically active population.
		Ethnic group.	Enables identifying those belonging to a particular ethnic group and the importance of this characteristic for the resettlement program.
		Type of family (nuclear, extended, family composition).	Makes it possible to identify existing family networks and their function, and single-parent families requiring special assistance.
		Educational level.	Provides information for the design of strategies for communication with the population and enables social development programs to be defined after the population has been moved.
	Community organizations (formal and informal).	Provides information on the community organizational level and existing organizations, and enables any part they may play in the resettlement process to be defined.	
	Delivery of education and health services.	Supply of and demand for education and health services.	Makes it possible to evaluate the quantity and quality of available education and health services that can be accessed by the population; to determine users of these services lost by moving the population; and to determine the demand to be generated at the resettlement site.
Psychological	Emotional bonds with housing, neighbors, communities, and the surrounding area.	Origin.	Determines psychological responses to displacement and the intensity of the feeling of loss, and provides information for the design of special support activities.
		Time living in the area.	
	Family history.	Prior displacements.	
	Level of satisfaction with housing, environment, and neighbors.	Participation in social organizations.	
Cultural	Practices and customs of individuals and communities, which have manifestations that are tangible (e.g., type of housing, use of space) and intangible (e.g., beliefs, preferences, tastes, etc.).	Organization and uses of space.	Knowledge of these aspects provides valuable information for participation models and for the design of housing and new settlements so that cultural practices are maintained.
		Type of housing. Construction materials. Cultural and religious practices.	
	Relationship to the earth.		

Continues

Table P3.1. Continuation

Dimension	Characteristics	Content	Relevance
Environmental	Demand for and use of natural environmental resources (water, power).	Demand for and use of natural resources, associated practices.	Shows the population's demand for water, power, and other natural resources, as well as the demand it will generate in the new settlement. Shows whether the practices are sustainable (e.g., use of firewood for cooking, agricultural practices), and the need for training to be provided in the new settlement for appropriate natural resource use.
		Solid waste and wastewater disposal.	Shows the population's existing type of refuse and wastewater collection and disposal to help determine whether there is a need for training activities to modify behaviors in the new settlement.
	Existing infrastructure and structures in the at-risk area that must be demolished.	Number of existing structures, built-up area, and type of materials.	Provides information on which materials can be reused, which can be recycled, and which must be disposed of; this determines the demolition techniques that can be used, the volume of material that must be handled, haulage and storage of reusable materials, and the areas for disposal of waste materials.
Political-Administrative	Political-administrative organization of each country for its territorial management (e.g., departments, provinces, municipalities, cantons, towns, communes, neighborhoods, etc.).	Political-administrative unit to which the settlement belongs. The administrative unit's public and social service institutions.	Determines the authorities with whom resettlement must be planned and types of existing institutions for the development of housing, public service, social, and social and economic development programs.
	Authorities of the political-administrative unit.		
Territorial	Land use and planning of the area, which determines, among other things, suitable sites for human settlement, either owing to their natural characteristics or to economic and social uses defined by the competent authorities.	Existing land use plans for at-risk areas and areas suitable for human settlement.	Defines the potential uses of the high-risk area after the population has been moved, and areas where the population could be resettled.

Source: Correa, E.

Census and Socioeconomic and Cultural Studies

Censuses are the indicated technique for counting population and gaining knowledge of demographic, economic, and social characteristics of everyone living, pursuing a productive activity, or having a right to the properties in the at-risk area. Since these data must be updated and must include all relevant information for resettlement program design, such censuses must be conducted and primary information compiled directly.

Objectives

Censuses and socioeconomic and cultural studies have various objectives:

- To describe and analyze the demographic, social, economic, and cultural characteristics of the population to be displaced (by ethnic group, where there is more than one)
- To identify and determine the number and types of social units (families, industries, businesses, productive units) and individuals to be displaced and to gain precise knowledge of their spatial location
- To identify the social units (families, economic units) that require special attention owing to their characteristics
- To provide information for resettlement program formulation
- To have a baseline for identification of the impacts of displacement and evaluation of the resettlement program.

Content

Table P3.2 presents as guidance the variables included in the census and their relevance in resettlement. This is general guidance as illustration of the different variables important in a socioeconomic study of the population to be displaced; determining the information that must be compiled will depend on the population's specific characteristics.

Since the use of the property determines the impacts of displacement and calls for specific solutions under the resettlement program, table P3.2 presents the main variables that should be taken into account depending on the type of use. It should also be borne in mind that not all property in the at-risk area is used for housing, since it may be used for businesses, industries, or other forms of economic exploitation without individuals necessarily living there.

Table P3.2. Census and Socioeconomic Study

Variables	Relevance
Identification information <ul style="list-style-type: none"> ■ Name of head of household ■ Identity document ■ Property number ■ Address or location ■ Telephone number or how to contact 	Accurate information must be available about the head of household or social unit to identify the person in charge with whom the relationship will be maintained during resettlement program preparation and implementation. The identity document number is used to distinguish between people with the same name and for the different legal procedures required. The other information is required to identify the at-risk property. If there is no address, some sort of appellation should be included to identify it.
Tenure of land and structures (owner, tenant, holder, occupier, other)	The type of tenure determines rights under the resettlement program and the type of assistance required for inhabitants without titles to property. The information provided by individuals is supplemented by that of the tenure study. For tenants, the rent amount should be included.
Uses of property (housing, income, industry, business, services, agricultural or animal husbandry activity, other)	Property uses determine the impacts of displacement, and will call for different solutions for the resettlement. For each use, specific variables should be included, as described below.

Continues

Table P3.2. Continuation

Variables	Relevance
Residential Use	
Family composition and characteristics <ul style="list-style-type: none"> ▪ Number of members ▪ Kinship ▪ Gender ▪ Age ▪ Schooling ▪ Primary and secondary occupations ▪ Place where occupation is pursued ▪ Disability 	<p>This information makes it possible to establish in each case the number of members per family, type of family, members' level of schooling, economic activity pursued by members, and the place where they pursue their activity (study or work).</p> <p>It also makes it possible to identify changes that will occur as a result of the move, as well as the families that, as a result of their specific conditions (such as having a member with a disability), require support or additional attention.</p>
Income and sources of income <ul style="list-style-type: none"> ▪ Family income by member and total income (in cash and kind) ▪ Expenditure by item and total expenditure ▪ Way that consumer goods are obtained (purchase, self-produced, donation) ▪ Place where consumer goods are obtained 	<p>The sources and amounts of income and family expenditure must be known to determine whether they will be impacted by the displacement.</p> <p>In order to restore economic conditions, it is not enough to ask about the job or main economic activity. Rather, an in-depth analysis must be made of the different types of activities pursued as livelihood by the different members of a family. For example, in rural areas, it cannot be assumed that families subsist on what is produced on their property. It is necessary to identify whether there are other sources of income or ways of obtaining consumer goods (e.g., temporary jobs, fishing, hunting, and gathering).</p> <p>The main and secondary or supplementary sources of income must be identified.</p> <p>Also to be determined are the places where families obtain their goods and resources (those commercially acquired and those gathered from nature or the environment) in order to evaluate possible sources of supply at the new site and the effects of displacement on the businesses they formerly patronized (e.g., loss of customers for businesses where they used to purchase their goods).</p> <p>This information is essential in designing projects to restructure the economic base of families after relocation.</p>
Housing <ul style="list-style-type: none"> ▪ Internal and external area ▪ Number and uses of rooms ▪ Floor, wall, and roofing materials ▪ Condition of housing 	<p>This information is useful for designing housing in the new settlements so that it is tailored to the characteristics and needs of the families.</p> <p>This information will also make it possible to assess changes after resettlement.</p> <p>Given the population's risk conditions, the status of its safety should be assessed to determine whether it needs to be moved immediately.</p>
Public services <ul style="list-style-type: none"> ▪ Power ▪ Water ▪ Sanitation ▪ Refuse ▪ Telephone 	<p>The type of services available to families must be determined so that they can be restored.</p> <p>This information is verified with public service companies to identify the account status of each family.</p> <p>Additionally, in cases where services in the new settlement are better than those the families formerly had, training must be provided to the population to prevent damage to infrastructure and promote the safe and efficient use of each service.</p> <p>Also to be assessed is the impact on family expenditure of the cost of the new services and families' capacity to pay for them following their relocation.</p> <p>It is important to analyze solid waste management and sanitation to determine whether these factors exacerbate disaster risk and whether people's practices must be modified in the new settlement.</p>

Table P3.2. Continuation

Variables	Relevance
Residential Use (cont.)	
<p>Ties to the site</p> <ul style="list-style-type: none"> ■ Origin ■ Places lived previously ■ Reason for moves ■ Time in area ■ Attitude towards displacement 	<p>This variable in large part determines the response to displacement. The deeper the roots, the greater the stress.</p> <p>Additionally, people who have moved previously in their lives likely have greater capacity to manage the situation and adapt than those who have never moved.</p> <p>Knowledge of this type provides guidance for resettlement programs and assists in identifying groups requiring additional support.</p>
<p>Social organization</p> <ul style="list-style-type: none"> ■ Types of existing organizations ■ Participation in community events (type and frequency) ■ Membership in an organization 	<p>This information is important in restructuring social networks after the move and in identifying different social groups that can help in the relocation process and in identifying leaders.</p>
<p>Cultural aspects</p> <ul style="list-style-type: none"> ■ Predominant values ■ Existing practices ■ Customs, patterns of behavior ■ Religion (practices, sacred sites, cemeteries) ■ Pets and other domestic animals 	<p>Cultural aspects or issues may influence responses to compulsory displacement and is fundamental in designing the resettlement program.</p> <p>If the people have sacred sites, a study to analyze the possibility of moving them with the population should be conducted. If this is not possible, a discussion should be held with the community to analyze what treatment they are to be accorded and how to manage this loss.</p> <p>The type and number of pets and other domestic animals must be determined in order to define whether special activities are needed for their care and whether rules for coexistence are needed in the new settlement.</p>
<p>Social satisfaction</p> <ul style="list-style-type: none"> ■ Satisfaction with spatial location ■ Satisfaction with housing ■ Satisfaction with community and neighborhood 	<p>This information makes it possible to assess willingness to resettle or resistance to resettlement, and the level of stress the population may face as a result of displacement.</p> <p>A high level of dissatisfaction, along with attractive relocation programs, will generate great pressure for immediate moves, and the reverse.</p>
<p>Social problems</p>	<p>Communities may have problems such as domestic violence, crime, or drugs.</p> <p>This information is used to determine whether to promote specific social programs to handle these situations and help people requiring specialized assistance. These situations must be handled carefully to prevent the professional team from being perceived as a threat or an enemy.</p>
Business, Industrial, or Service Use	
<p>Information identifying the owner of the business, industry, or service</p> <ul style="list-style-type: none"> ■ Name of owner or owners (individual or companies) ■ Age ■ Gender ■ Identity document ■ Property number ■ Address or location ■ Name of business (registered name) 	<p>Information is needed about the owner of the economic activity to identify who is in charge of it. These individuals may only be tenants of the premises where the activity is pursued and may not reside there.</p> <p>Age is an important variable in determining vulnerability to displacement.</p>
<p>Tenure of the premises where the economic activity is pursued</p>	<p>Provides information on the type of right to the property where the economic activity is pursued, which, in turn, serves as a resettlement program criterion.</p> <p>In the case of tenants, the rent amount should be determined.</p>
<p>Size and characteristics of the premises</p>	<p>This information is needed to define the type of solution to be applied in the new settlement.</p>

Continues

Table P3.2. Continuation

Variables	Relevance
Business, Industrial, or Service Use (cont.)	
Public services <ul style="list-style-type: none"> ■ Power ■ Water ■ Sanitation ■ Refuse ■ Telephone 	As in the case of residential properties, it is necessary to determine the access to public services to decide how they will be reestablished and how solid waste will be managed; this information in turn makes it possible to decide whether practices need to be changed in the new settlement and to promote rules in that regard.
Type of product or service	It is essential to have information on the type of product produced or marketed or the service offered in analyzing alternatives for relocating economic units.
Equipment, machinery, and work tools	This information makes it possible to determine the level of complexity of moving equipment and machinery. In some cases, dismantling, moving, and installing is highly complex and costly.
Monthly volume and value of production or sales	This information makes it possible to determine income lost as a result of the move and to define support measures while income is being reestablished.
Number of employees	An analysis should be made of whether relocation will affect employees or whether they will be able to continue working at the new site.
Customers (source) <ul style="list-style-type: none"> ■ Local ■ Area ■ Regional ■ National ■ International 	The source of customers determines how long it may take to reestablish income. For example, if customers are the same population as that being resettled, and a collective resettlement is designed, income may be lost only for a few days while the move is under way and the business set up again. If the resettlement is individual, the business owner will lose his entire clientele and will have to reestablish it at the new site, which will take several months.
Time at location	How long an economic activity has been pursued at a specific site is an important variable that may determine the magnitude of impacts and difficulties of reestablishing the activity.
Agricultural and Animal Husbandry Uses	
Information identifying the owner of what is produced <ul style="list-style-type: none"> ■ Name of owner or owners (individual or companies) ■ Age ■ Gender ■ Identity document ■ Property number ■ Address or location ■ Name of business (registered name) 	As in the other cases, information on the owner must be obtained to determine the person in charge of production. Age is an important variable in determining vulnerability to displacement.
Total lot area and area devoted to agricultural production or animal husbandry	This information is needed to determine the size of the replacement properties.
Public services <ul style="list-style-type: none"> ■ Power ■ Water ■ Sanitation ■ Refuse ■ Telephone 	The types of services available to the productive units must be determined so that they can be restored at the new site and to determine whether training activities need to be included to change behavior and practices associated with use of services and refuse disposal.

Table P3.2. Continuation

Variables	Relevance
Agricultural and Animal Husbandry Uses (cont.)	
Soil quality	The land for the resettlement of productive units should be of at least the same quality as that previously used. If land of better quality is obtained, the unit area can be smaller. If land quality is poorer, additional technical assistance should be included so that the former productivity is achieved.
Type of crop <ul style="list-style-type: none"> ▪ Perennial ▪ Semiperennial ▪ Seasonal ▪ Sowing-harvesting cycles 	<p>This information makes it possible to determine the losses to be faced by producers as a result of the move, calculate the time it will take to begin to produce at the new site, and define support measures while production is reestablished.</p> <p>Sowing-harvesting cycles provide information for planning the move so that producers can harvest their products at the existing site and begin the sowing season at the new site.</p>
Type and number of animals	The type and number of animals determine the areas required at the new site and provide information for planning actions for moving the animals.
Production technology	This information makes it possible to determine whether steps must be taken to improve technology. In some cases, if production technology is improved through technical assistance, the area of land used for production can be reduced.
Productive infrastructure, equipment, and machinery	<p>This information makes it possible to determine the infrastructure that must be replaced in the new settlement so that individuals can continue production.</p> <p>The inventory of equipment and machinery provides information for moving them and clarifies the costs related to the moving.</p>
Use of what is produced; income <ul style="list-style-type: none"> ▪ Consumption ▪ Sale (amount, periodicity, income) 	This information is useful in designing the measures required to support producers in reestablishing production and income in the new settlement.
Place of sale	An analysis should be made of whether marketing sites can continue to be used at the new settlement or whether new markets must be sought.
Employees <ul style="list-style-type: none"> ▪ Permanent ▪ Temporary 	An analysis should be made of whether relocation will affect employees or whether they can continue working at the new site.
Natural resource use, refuse generation and disposal	How natural resources are used and refuse is disposed of may exacerbate risk. Knowledge of producers' practices provides information for determining whether there is a need for training activities and rules governing these practices at the new settlement, and whether other ways to promote sustainable production practices are needed.

Source: Correa, E., 1999.

Designing the Questionnaires for Gathering Information

The instrument to be used to gather information for preparing the census and the socioeconomic and cultural study is the questionnaire. To define the variables that will be included, secondary sources can be reviewed, trips made to the area to observe the population's characteristics and conditions, and exploratory interviews conducted with local authorities and community leaders and members.

Based on this information, a semistructured questionnaire is designed (open-ended questions) for each type of social unit (family, business, industry, agricultural or animal husbandry activity, etc.) and then administered to a sample of these units. Based on the replies obtained, a structured questionnaire (close-ended questions) is designed, which facilitates information quantification and analysis. These questionnaires are ad-

ministered again to a sample for testing, and for preparation of the final instruments. An “observations” section should be included so that specialists can record additional information or any qualitative information they consider valuable.

This topic is not discussed in depth because these research techniques are well known to social scientists.

Conducting the Census

One practice that has been of significant benefit in resettlement programs is for the questionnaire to be administered in interview format by the social specialists who have a direct relationship with the social units. The census is the first personal contact between the specialist in charge of the social units and the head of each unit. Interviews not only make it possible to gather the required information, but also help to establish a relationship between the head of household or social unit and the specialist. That relationship is the determining factor in building trust and in conducting the process as a whole. Through interviews, many factors can be identified that are important in determining the type of support each unit needs and in designing resettlement program activities.

The census is the first personal contact between the specialist in charge of the social units and the head of each unit. Interviews not only make it possible to gather the required information, but also help to establish a relationship between the head of household or social unit and the specialist.

As evidence that the questionnaire was administered, it can be signed by the head of the social unit and the interviewer, who may give the head of the social unit a copy for his or her personal file, a step also contributing to transparency.

At the time the questionnaire is administered, the documents agreed to at the community meetings (for example, copies of property titles) can be collected. A record must be kept of the documents provided by each social unit, and a receipt should be provided as evidence that the documents were received.

Focus Groups

Like the census, focus groups can be organized in accordance with the different population groups, for example, by gender, age, land tenure, or property use, by which means highly valuable qualitative information enriching the quantitative census data may be gained.

Observation and Other Techniques

During field work, it is highly important to observe everything taking place to grasp the reality and economic, social, and cultural dynamics of the communities. Techniques such as anecdotal or systematic observation may also be used for aspects considered important. Ethnographic studies are highly useful tools for working with some types of population.

The techniques and instruments used to prepare the social, economic, and cultural studies should be selected by the interdisciplinary teams preparing those studies.

Inventory of Properties, Buildings, and Structures

The area of each lot or property, as well as of the built structures (housing, social service centers, public service infrastructure, structures for use in production, etc.) must be known in designing the resettlement program. Resettlement entails the demolition and replacement of built structures, so that detailed information on such structures is required.

The objectives of the inventory are as follows:

- To determine the area, size, and borders of each lot
- To determine the built-up area on each lot, its uses, and current condition
- To identify the practices and customs of the families and social units in managing spaces
- To provide information for housing design
- To assess structures' level of vulnerability to the potential hazard
- To have a baseline for assessing the impact of the resettlement program's housing solutions and production infrastructure
- To identify the structures to be demolished, the volume of waste, and its potential use.

Properties and structures are inventoried and measured in detail by means of *topographic surveys*, which compile information on property area, built-up area, spaces, design, construction materials, number of floors, and structure condition.

In population resettlement for disaster risk reduction, assessing the resistance of structures to the potential hazard is fundamental in defining resettlement priorities.

Depending on the resettlement strategy utilized, it may be necessary to appraise or assess the value of structures. Such appraisals are based on the topographic survey information.

The level of detail of these surveys will depend on the resettlement strategy utilized. When land or structures need not be paid for and the new housing is simply given to the families, detailed surveys are not required. In such cases, the information on the built-up area, the type and use of spaces, and the level of vulnerability may be sufficient.

These surveys are conducted by experts. As was the case for the census, the date and time of survey administration should be decided with the population, and a responsible person should be present to vouch for the reliability of the information recorded. A copy of the survey map can also be provided, which can be signed by the head of household and the expert in charge of the survey.

The techniques and instruments used to prepare the social, economic, and cultural studies should be selected by the interdisciplinary teams preparing those studies.

Tenure Study

Once a determination has been made that the areas at high risk are not suitable for human settlement, it is necessary for the governmental agencies to purchase the rights to the land or for individuals to transfer them to the state so that it can assign a public use to the land and control its occupation. Moreover, if these rights are not purchased by or transferred to the state, individuals with titles to the property will still be obliged to pay taxes and upkeep on properties they cannot use; and authorities will not have legal instruments enabling them to control their occupation. Therefore, a tenure study must be conducted to identify the legal status of all at-risk properties and existing rights to the land and properties.

The objectives of the tenure study are as follows:

- To determine the type of tenure of properties at high risk
- To identify the types of rights that each social unit has to a property where it resides or pursues an economic activity
- To identify conflicts between different existing rights.

Generally, in a human settlement, multiple forms of tenure and property rights may be found, for example the following:

- Owners of land and structures with legal title substantiating ownership; ownership may be individual or collective under existing national law
- Owners with legal difficulties such as seizure orders or intestate successions
- Holders of properties belonging to a third party but to which they have rights under national law
- Occupiers of land belonging to the state who are authorized to occupy the property and over which they may have rights under national law
- Tenants with a written or verbal contract with the owner, who pay rent to live or pursue an economic activity at the site
- Squatters on land belonging to third parties or to the state who live on the property without any authorization or right.

The different types of property rights may serve as the basis for establishing criteria for the type of housing solution. For example, offering the same solution on the same terms both to individuals with title and to tenants may create conflict and discontent. Therefore, the documents provided by the families and social units substantiating the various rights must be reviewed, as well as the country's property registry.

Information Management Systems

The use of cartographic maps facilitates the organization and taking of the census as well as the georeferencing of information, which is highly useful in monitoring the land acquisition process and the moving of the population.

The socioeconomic and legal information, as well as the information on properties and structures, should be entered in the information systems designed in the preceding phase.

Information Analysis

Once the information has been gathered, it should be systematized, processed, and analyzed. For this purpose, statistics packages facilitating the management of this information are used.

An analysis should be made of all variables for which information was gathered, making it possible to ascertain the socioeconomic and cultural characteristics of the population, the types of rights its members have to the properties where they live, and the details and condition of existing structures.

Classification of Population by Type of Impact and Level of Vulnerability

Information analysis also facilitates the identification of the types of impacts to be faced by social units when displaced, and their classification by characteristics and type of impact.

The relevant variables for this classification are these:

- **Type of tenure.** This includes owner, holder, occupier, tenant, and the other types of tenure identified in the tenure study.
- **Use of property.** Property can serve for housing, rental use, business, industry, service, agriculture, animal husbandry, and the other activities identified. How the property is used determines who will lose sources of income. Moving a family that uses its property only for residential purposes is not the same as moving one that also has a home-based business that is its livelihood. Different uses of property include the following:
 - *Residential use.* Property is used only as housing.
 - *Economic activity.* In urban settings, a property may be used to operate an industry, a business, or a service establishment; in rural areas, it may be used for agriculture, animal husbandry, forestry, or mining.
 - *Residential use and economic activity.* Property is used for both purposes. This occurs in both urban and rural areas. Housing/business or industry combinations are found in cities; and housing/agricultural and/or animal husbandry activity combinations are found in rural areas.
 - *Rental use.* Part of the property or the entire property is rented by the owner to a third party. If the latter, the owner does not live on the property and pursues no economic activity there. Thus, the property is used by its owner solely as a source of income.
 - *Asset.* Although the property owned is a component of the owner's assets

regardless of its use, cases exist where the owner does not use the property for housing, economic exploitation, or income—that is, it is solely an asset.

- **Types of loss.** These include housing, income, access to education and/or health services, social networks, and other types of losses identified.
- **Level of vulnerability.** Some characteristics are associated with vulnerability in the context of a move, including the age of the head of household or owner of the economic activity, income level, degree of economic dependence on the property, time lived or worked at the site, single-parent families, or the illness or incapacity of the head of household or members of the family. Greater vulnerability means extra support is needed.

This classification may be organized as a cross-referenced table in which the rows show the current situation of families and social units with regard to the variables mentioned above, along with any other variables that may be relevant to the socioeconomic and cultural study. The columns show the impacts that they will experience as a result of displacement.

As illustration, matrix P3.1 shows that not all social units face the same impacts.

Matrix P3.1. Example of a Matrix for Impacts of Displacement

Current situation		Impacts of displacement				
		Loss of home	Loss of income	Loss of access to education	Loss of access to health services	Increasing family expenditure
By tenure and use						
Tenure	Use					
Resident owner	Housing					
	Housing and economic activity					
	Housing and rent					
Nonresident owners	Rental use					
Residents without title	Housing					
	Housing and economic activity					
Tenant	Housing					
	Economic activity					
Access to education						
School-age children	Yes					
	No					
Access to health services						
Health center record	Yes					
	No					
Cost of public services						
Payment for public services	Yes					
	No					
Taxes						
Payment of real estate taxes	Yes					
	No					

In the same way that a matrix containing this information can be prepared, a comparable matrix can be prepared containing a list of families and social units by type of tenure and use, with the columns showing the types of impacts each will face and its level of vulnerability to the variables mentioned above.

Resettlement Objectives

The matrix of impacts becomes a matrix of resettlement objectives depending on what each family and social unit must reestablish. Matrix P3.2 below is the resettlement objectives matrix for the example above. Once again, it may be seen that not all families or social units require the same type of support in reestablishing their initial conditions.

Matrix P3.2. Resettlement Objectives Matrix

Current situation		Impacts of displacement				
		Reestablishment of housing	Reestablishment of income	Reestablishment of access to education	Reestablishment of access to health services	Advice on managing family expenditure
By tenure and use						
Tenure	Use					
Resident owner	Housing					
	Housing and economic activity					
	Housing and rent					
Nonresident owners	Rental use					
Residents without title	Housing					
	Housing and economic activity					
Tenant	Housing					
	Economic activity					
Access to education						
School-age children	Yes					
	No					
Access to health services						
Health center record	Yes					
	No					
Cost of public services						
Payment for public services	Yes					
	No					
Taxes						
Payment of real estate taxes	Yes					
	No					

At the moment of defining the resettlement objectives, the entities in charge of the program may decide whether the program will be used as an opportunity to improve the living conditions of the population to be resettled. When the population to be resettled is living in poverty, does not have title to the property, and lives in precarious housing, resettlement may improve its living conditions.

Resettlement Alternatives

The results of the studies described above make it possible to identify resettlement requirements in connection with the following:

- Land area
- Number and type of dwellings and structures
- Types of activities required to reestablish the income of those losing it
- Access to public and social services
- Rebuilding of the population's social and economic networks.

With this information, a search can be conducted for available land and housing in the area where the resettlement is being implemented. The search for land can include the supply of both private land and land belonging to the state (the national or the political-administrative unit, province, department, municipality, canton, etc.) or to government entities. The search for housing includes the supply belonging to government institutions or private builders, or on the existing housing market.

Based on the analysis of the supply of land and housing and the socioeconomic and cultural characteristics of the population to be resettled, the resettlement alternative, either collective or individual, can be selected.

Collective Resettlement

This alternative consists of resettling all families and social units on one or more pieces of land purchased for that purpose or allocated by local authorities. It entails preparing and subdividing the land into individual lots, with the corresponding legalization, and designing the settlement (access and internal roads; public service networks; housing; and education, health, recreational, community centers; etc.) and construction of works.

Housing may be built by engaging the services of specialized companies, through agreements with public housing institutes or partnerships with housing organizations, or by self-construction.

Collective resettlement also includes special activities for reestablishing the income of the social units that lose it, for organizing the community, and for rebuilding social and economic networks, as will be seen in the next chapter.

This alternative is advisable for populations with homogeneous characteristics, strong socioeconomic networks, and a high level of social cohesion. In resettlements of those whose livelihood is derived from the land, it is the most appropriate strategy.

Individual Resettlement

Individual resettlement is an effective strategy when there is a supply of property on the market that meets the needs of the population to be resettled, the level of cohesion

among families and social units is not high, their social and economic networks are not strong, and the compensation for the property in the at-risk area is sufficient for individuals to purchase decent and safe housing in a lawful settlement. This strategy is highly useful in urban resettlements in medium-sized and large cities.

This alternative utilizes the existing market for properties (housing, farms, business and industrial premises, etc.) in the area where the resettlement is to be implemented that are geared to the characteristics of the population to be resettled. Additionally, real estate, legal, social, and economic advice is provided to support people in reestablishing their housing and livelihoods.

This alternative does not consist solely of financial compensation, since experiences worldwide have shown that the risk is very high that individuals will be unable to reestablish their housing and livelihood when they receive financial compensation alone. Risks faced by individuals receiving monetary compensation include the following:

- Amounts are insufficient to purchase another home or property on the market.
- Money is not received in time, or received in several payments, making it impossible to negotiate for the replacement housing or property.
- Victimization by fraudsters causes the loss of all or some of what was received.
- The home or property purchased has technical or legal problems.
- The money is used to meet immediate needs rather than for purchasing the housing.
- One member of the family takes advantage of the others and disappears with the money.

To reduce these risks, this alternative includes different types of advice for the population to be resettled.

Menu of Resettlement Alternatives and Options

A resettlement program may include both resettlement alternatives and the different options within them. The existence of different alternatives makes it possible to address the different characteristics, expectations, and needs of the population, expedites the process, and reduces conflict.

Validating the Results of the Analysis, Consultation, and Consensus Building

The results of the census studies, socioeconomic and cultural studies, tenure study, property inventory, classification of population by type of impact it will face, and resettlement objectives and resettlement alternatives should be presented to the families and social units to be resettled for validation of the results, and consultations should take place and agreement be reached on the resettlement alternatives and options.

When the census list has been checked by the population and the necessary corrections made, the census is closed and the closing date disseminated. This is highly useful so that the resettlement process can be planned and opportunists prevented from entering the area seeking inclusion in the resettlement program.

It is important for this presentation to be made at workshops with the population to be resettled, which may be organized in the same way and for the same types of groups as for the information meetings. At this stage, the workshop approach is the most useful, since active participation by the individuals is required to analyze, validate, and reach agreement on the results of the studies and resettlement alternatives.

At this stage, the objectives are as follows:

- To validate the results of the census, tenure study, and inventory of existing structures
- To reach agreement on the census closing date
- To validate the results of the socioeconomic and cultural study
- To engage in consultations regarding the displacement impacts matrix
- To engage in consultations regarding the resettlement objectives matrix
- To engage in consultations regarding the resettlement alternatives identified and the different options within each
- To preselect the resettlement alternatives and options.

Validation of the results of the census, tenure study, and inventory of structures. This step is highly important, because it is at this point that all those living, pursuing an economic activity, or with some type of right to the properties in the at-risk area check to see whether all information they provided is reflected correctly in the census and studies prepared by the entity.

For this validation, lists are presented with the names of the heads of household or social units, the information on the location and use of the property, the type of tenure, and the most relevant data (for example, number of school-age children) so that people can check them, and indicate whether they are correct or contains errors. The lists should not contain private or confidential information regarding the families and social units, such as income level and other information whose public disclosure would be serve no purpose. Public presentation of the census is also a means of social control, since often individuals come forward to report improper situations with their neighbors.

The census list should be made available to the population for a specific time period (for example, 15 working days), during which individuals may request any corrections for which there are grounds.

Census closing date. When the census list has been checked by the population and the necessary corrections made, the census is closed and the closing date disseminated. This is highly useful so that the resettlement process can be planned and opportunists prevented from entering the area seeking inclusion in the resettlement program.

Validation of the results of the socioeconomic and cultural study. The results regarding the main social, economic, and cultural characteristics are presented in aggregate for the population studied, rather than at the individual level.

Presentation in this format allows people to see themselves in the results presented and to improve the analysis or interpretations of the team. Joint analysis of income sources, sowing and harvesting cycles in rural areas, the market for products, centers attended by the school-age population, customs, types of recreational activities, religious practices, and the other results of the studies will make it possible to corroborate the important issues that must be taken into account in resettlement planning.

The analysis of the results regarding natural resources use and solid waste disposal and sanitation becomes a teachable moment for reflection on the consequences of the population's practices and the possible need for their modification.

This validation step is also highly important because it helps people feel that the entity in charge of preparing the resettlement program understands and respects them, and that an effort is being made to address their needs. This contributes to their sense of security in the process, because it lessens the stress generated by displacement and promotes trust between the entity and the community.

Consultation regarding the matrix of displacement impacts. The different variables considered in classifying the population into different subgroups are presented, along with the matrix prepared to identify the potential impacts of displacement for each. Joint analysis of the population subgroups and impacts enables people to understand that not all of them will encounter the same losses. This exercise also helps identify any situations not taken into account by the team in charge of the studies that should be included in the impacts matrix.

Consultation and consensus regarding resettlement objectives. Once people have recognized the different potential impacts of displacement, as well as the impacts that they will face because of the land tenure, use of properties, and any other relevant variables identified, the next step can go forward—analysis of resettlement objectives. This is a highly useful exercise, since it makes it possible to understand why not all families or social units will participate in all programs to reestablish socioeconomic conditions or receive the same solutions. For example, it will be possible to understand why an owner not living at the site will receive payment for the value of his or her property rather than housing, or why a tenant will not have the same solution as a holder, and why residential tenants and business tenants will be accorded different treatment.

Having analyzed, discussed, and agreed upon the resettlement objectives for the different population subgroups, the team explains that these objectives will be used in formulating the resettlement program.

Consultation regarding resettlement alternatives and options. The resettlement alternatives identified are presented, together with the different options within them. For each alternative and option, the team in charge of resettlement should present the different subprograms (components) of each alternative. For example, for collective resettlement, the team reports that schools will be built so that children can study, and indicates the area of land where those involved in agricultural activities will be received, among other things. For individual resettlement, the team explains that families not receiving sufficient compensation to purchase housing on the market will receive a subsidy or credit to make up

People should understand that they need not immediately choose any of the alternatives and options, but rather should analyze them to determine which may be the best for each of them.

the market value of the housing, and will also be offered different types of advice to support them in reestablishing their living conditions.

Those attending the meetings can be divided into subgroups to analyze the advantages and disadvantages of each alternative and then discuss them with all participants. People should understand that they need not immediately choose any of the alternatives and options, but rather should analyze them to determine which may be the best for each of them.

Agreement is reached on a specific period (two to three weeks) for each family and social unit to analyze the different options and make a preselection. It is important to explain that families are not making final selections at this point, and that they will be able to make the final selection only when each alternative is more fully defined. The team explains the importance of this preselection in determining the different solutions and preparing the resettlement program, since each solution involves different actions. People are invited to engage in in-depth discussion with the social specialist to clear up all concerns and help them analyze which alternative suits them best.

Preselection of resettlement alternative and option. Within the periods set for preselection of the alternative, the heads of household and social units report their decision and sign a resettlement alternative preselection agreement, which should include all rights and obligations of both the head of household or social unit and the entity, specifying that the selection may be changed when each alternative has been more fully defined.

Signature of minutes and of collective and individual agreements. Among the results of this process are the documents signed by the entity in charge and the population to serve as guidance and as base documents for resettlement program formulation. These types of documents are highly useful in handling claims and disputes. They include the following:

- Minutes of the meetings at which were presented the results of the census, socio-economic and cultural study, tenure study, and inventory of properties, housing, and structures
- Document stipulating the census closing date and the census list
- Agreement on types of impacts of displacement and resettlement objectives
- Agreement on types of resettlement alternatives and options, their content, their scope, and the responsibilities of the parties
- Individual agreements on the resettlement alternative preselected and the responsibilities of the parties.

Impacts on the Population that Will Continue Living at the Site

When the resettlement program is part of a risk reduction plan in which only part of the population needs to be resettled, the impacts of population displacement on the neighbors who will continue living at the site need to be identified. This step in turn will

enable the necessary measures to be designed to prevent, mitigate, or provide compensation for these impacts. The following activities are carried out in pursuance of these objectives:

- Identification of impacts and definition of measures to address them
- Consultation on and validation of impacts and measures to address them.

Identification of Impacts and Measures to Address Them

To identify the potential impacts for those who continue living at the site, an analysis is made of the results of the census and socioeconomic study of the population to be resettled, especially the number of children attending schools in the area, the number of users of the area's health centers, the places where they buy their consumer goods, whether there are relatives in the neighborhood, and relations with the community.

Additionally, focus groups with a representative sample of population are formed and interviews are conducted with directors of schools, health centers, and any government institutions with a presence in the area, as well as with leaders of social organizations and owners of businesses and service establishments; the goal is to analyze the impacts of the displacement of users and customers, as well as possible options for mitigating them.

Based on this information, a determination can be made of the types of impacts this population will face due to the relocation of its neighbors. Possibly, owing to the size of the resident population, the resulting impacts will be nil or minimal. In other cases, depending on the type of community and its relations, the following impacts may result:

- Closure of educational establishments and/or health centers, or elimination of transportation routes because numbers of users have declined
- Breakdown of economic networks (for example, informal credit)
- Loss of income for businesses and service establishments whose main customers are drawn from the population to be resettled
- Breakdown of family networks
- Breakdown of social networks resulting from loss of mutual assistance networks, breakdown of social organizations, and resettlement of community leaders or members of social groups
- Reduction or loss of budgetary allocations from government entities for the execution of works or implementation of programs because numbers of beneficiaries have declined.

Possible measures to prevent, mitigate, or provide compensation for these impacts are these:

- Include the entire population in the resettlement program. When only a small number of families remain and will face major impacts because their socioeconomic conditions and access to services will be significantly affected, the solution is to include them in the resettlement program.

- Include part of the population in the resettlement program. If impacts will be felt only by individual social units, for example, extended families who will be separated or business owners who lose their customers, they may be offered inclusion in the resettlement program.
- Reach agreements with institutions to ensure that they continue to provide education and health services. In some cases, the adjustment that should be made by social service entities is to reduce staff and resources in line with the number of users they will have. Other times, users should be transferred to other schools or health centers nearby.
- Promote or support social reorganization. When existing social organizations break down, support needs to be provided to the community so it can reestablish its organizations.

Validation and Consultation with the Population that will Continue Living at the Site

The impacts identified should be presented to the community for validation and verification that all impacts were taken into account. The defined measures to address them should also be analyzed in conjunction with the community to determine their feasibility and effectiveness.

As in the case of the population to be resettled, this validation and consultation takes place through community meetings and workshops. The same guidelines as those indicated above may be followed in planning and holding these meetings. These meetings should include the following topics:

Information on the resettlement of neighbors and studies conducted. Because the risk reduction plan was developed on a participatory basis, this population group is already aware of the resettlement of its neighbors. Therefore, these meetings provide information on the different studies conducted and the stages of resettlement program formulation and implementation.

Consultation regarding the identified impacts. A presentation should be given on the activities carried out to identify the impacts. The joint analysis of the impacts facilitates the evaluation of their magnitude.

Consultation and reaching of consensus regarding measures to address the impacts. The measures identified to prevent, mitigate, or compensate for the impacts are presented, and the effectiveness of these measures is analyzed in conjunction with the population. This activity may be carried out by subgroups, as in the case of the population to be resettled. When other institutions (for example, schools or health centers) participate in implementing these measures, their senior staff should participate in the meetings to confirm the actions that will be carried out.

The activity concludes with the signature of agreements on the measures defined and their scope.

Specific families or social units in this population may be offered inclusion in the resettlement program if they are strongly affected by the impacts of resettlement. If one possible resettlement option is the “chess game” (exchange of housing between families not included in the resettlement program and families to be resettled), this is the time to offer this option and to determine whether there are people interested in participating. As in the case of the population to be resettled, a period is established for the families concerned to analyze the option and report their interest in participating in the exchange; it should be clear that they are making only a preliminary decision that will be confirmed when the details are known of the resettlement alternatives offered. Based on the number of social units that manifest their interest in the “chess game,” it is possible to determine whether this option is feasible, and how much housing will be available in the area for anyone being resettled who is interested in continuing to live at the site.

Potential Uses of At-risk Areas to Be Recovered

One factor in the success of resettlement of populations living in at-risk areas is ensuring that other people do not settle in these sites. The probability of people relocating is very high if the area is simply left unoccupied. The way to ensure that relocation does not occur is to assign a use to the area and, to the extent possible, enable communities in neighboring areas to benefit from it.

To achieve these objectives, the entity in charge of risk management needs to define potential uses for the at-risk area when the population living there has been resettled, as well as the rehabilitation works that will be required for the uses defined.

If several potential uses exist, the communities and stakeholders concerned may be consulted for selection of the use most suited to their interests and needs. The entities or authorities need to be defined that will be in charge of controlling and maintaining the areas after their reclamation and adaptation to the new uses.

Preparing the Report on the Analytical Phase

The results of all the studies referred to above should be included in a report to be used for consultation and guidance throughout the process and to serve as a baseline for subsequent assessment of the impacts of the resettlement program.

This report should contain the following:

- 1) *Background.* This offers a brief summary of the risk situation and the studies conducted in preparing the risk reduction plan and in determining whether the population needed to be resettled.
- 2) *Description of the area of study and population studied.* This offers a brief description of the geographic location and main characteristics of the area and population, both the population to be resettled and the resident population that will continue living at the site.

- 3) *Main objectives.* This section describes the objectives of the analytical phase.
- 4) *Specific objectives.* This offers an in-depth account of the purposes of the census, socioeconomic and cultural study, tenure study, inventory of lots and structures, and the study of impacts on the resident population that will not be displaced.
- 5) *Methodology.* This describes the methodology and instruments utilized, and the period in which the information was gathered. The instruments should be included in the annexes.
- 6) *Results.*
 - a) *The results of the different studies.* It is advisable to present these using tables and graphs. The census should be included in an annex.
 - a) *Impacts of displacement.* This describes the variables and criteria utilized to identify the impacts and classify the population. It should also include the matrix of displacement impacts and the analysis of it.
 - a) *Impacts on the resident population.* This describes the activities carried out in identifying impacts on the resident population, the impacts identified, and the measures to address them that were defined and agreed on with the population and relevant entities.
- 7) *Resettlement objectives.* This includes the resettlement objectives by type of impact, and the matrix summarizing them.
- 8) *Resettlement alternatives.* This includes the activities carried out in defining the resettlement alternatives, and the alternatives defined.
- 9) *Validation of results and resettlement alternatives.* This offers a description of the different meetings and workshops held with the communities to validate the results of the studies, the impacts identified, the resettlement purposes and alternatives, and the census closing date. It includes the number of families and social units per resettlement alternative. The meetings minutes and agreements signed are attached as annexes.
- 10) *Validation of impacts and mitigation measures for the resident population.* This includes the different meetings held to validate the impacts identified and to reach agreement on the mitigation measures. The agreements signed with the community and entities are attached as annexes.

Results of the Analytical Phase of Resettlement Program Formulation

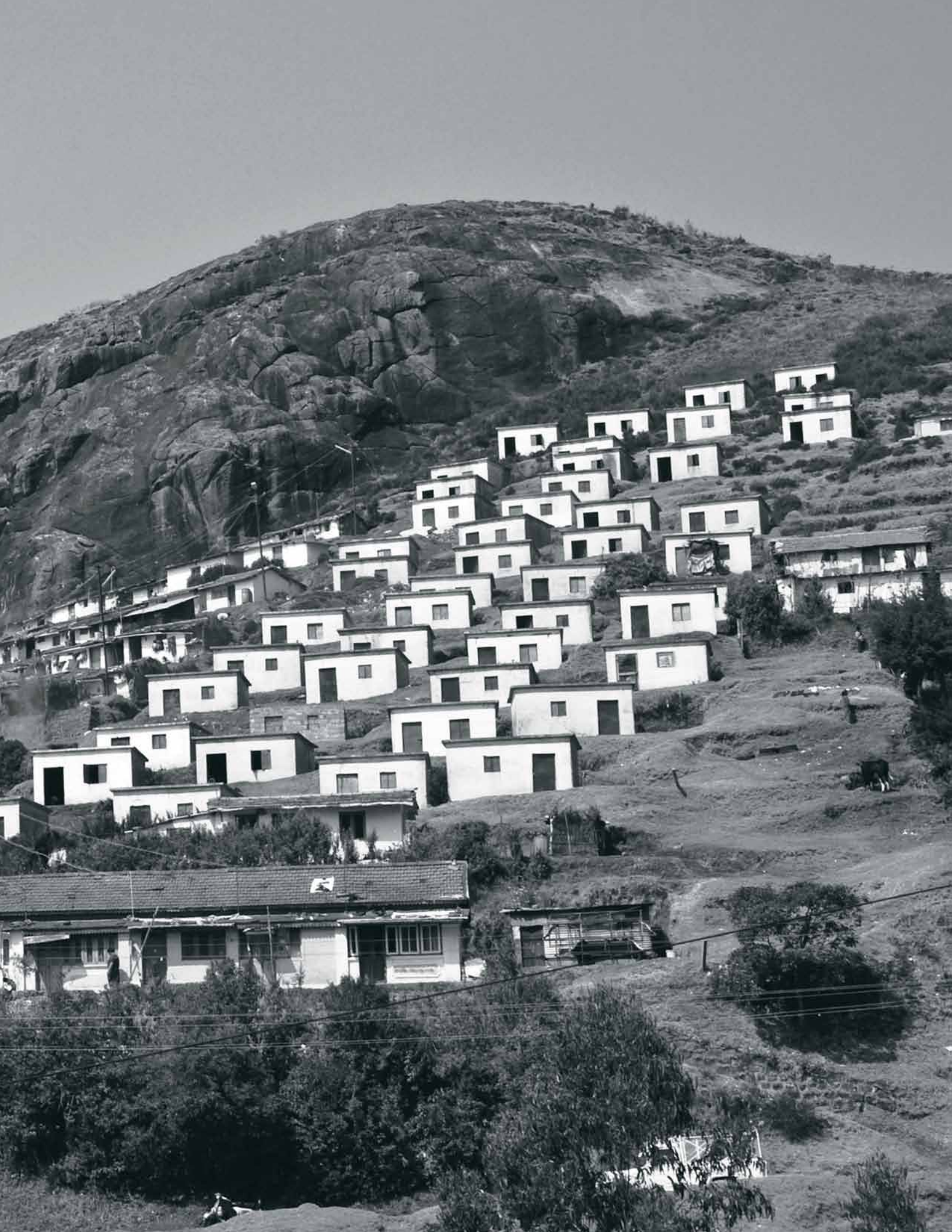
Box P3.2. summarizes the results of the analytical stage. When these results have been obtained, resettlement program formulation can proceed.

Box P3.2. Results of the Analytical Phase of Resettlement Formulation

- Population to be resettled informed of the entity in charge of the resettlement program, the work team, the studies required, their purposes, and the timetable for their preparation
- Relationship established between the entity in charge of the resettlement program and the population to be resettled
- Two-way communication channels established and operating
- Population census, socioeconomic and cultural study, tenure study, and study of properties and structures conducted, and results validated with the population
- Census closing date agreed on and census closed
- Population to be resettled classified by type of displacement impact
- Resettlement objectives defined and agreed on with the population
- Resettlement alternatives and options defined
- Impacts on the resident population identified and measures to address them agreed on with entities and communities
- Potential uses of the at-risk areas established
- Analytical stage report prepared and available

Reference

Correa, Elena. 1999. *Impactos socioeconómicos de grandes proyectos. Evaluación y Manejo*. Bogotá: Editorial Guadalupe.



Formulating the Resettlement Program— Planning Phase

By Elena Correa

Based on the results of the studies conducted during the analytical phase and the agreements reached during the consultations with the population to be resettled and with key stakeholders, three programs, all of them part of the disaster risk reduction plan, should be prepared:

- Resettlement program
- Contingency program
- Rehabilitation of the at-risk land program.

Proper planning of these programs makes it possible to organize actions to achieve the objectives pursued and to define the resources required for their implementation, and serves as the basis for evaluating the results.

These programs also become instruments governing relations among the entity in charge of their preparation and implementation, the communities (to be resettled, resident, and host), and the stakeholders involved. They set out the agreements and responsibilities, establish a time frame, and define the outcomes sought, thus providing a vision of the future that reduces the stress and anxiety associated with displacement and the risk situation faced by the population.

This chapter describes the programs with their respective components and content. The specific activities of these components will depend on the context and particular situation in which the intervention is taking place, on national legislation, and on the institutional arrangements established in phase 2. Therefore, what is presented in this chapter is general guidance for formulating the programs. Box P4.1 lists the objectives of the three programs under discussion.

Box P4.1. Objectives of the Planning Phase of Resettlement, Contingency, and At risk Area Rehabilitation Programs

- To formulate and reach agreement on the resettlement program with the communities and stakeholders involved
- To design the contingency program for emergency response
- To design the program to mitigate impacts for populations that will continue living at the site
- To design the rehabilitation program for the at-risk recovered land
- To incorporate complaint, claim, and dispute resolution mechanisms
- To design the supervision, monitoring, and evaluation system
- To determine the costs, sources of financing, and timeline of each program

Phase 4 describes the process for formulating a collective or individual resettlement program, their objectives, components and activities involved.

Resettlement Program

The objectives of the resettlement program are these:

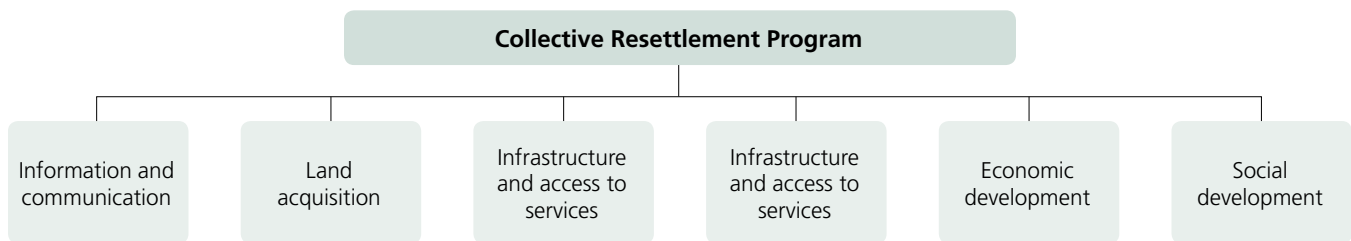
- To protect the lives and assets of the population exposed to high disaster risk
- To resettle the population at a safe site, improving or reestablishing its socioeconomic conditions
- To mitigate negative socioeconomic impacts on the populations that will continue living at the site
- To mitigate negative socioeconomic impacts on host communities.

As described in the last chapter, two approaches may be taken to resettlement: collective and individual. The content of the resettlement program for each approach is presented below.

Collective Resettlement Program

This alternative consists of resettling the entire population on one or more pieces of land acquired or allocated by local entities or authorities. It includes the components or subprograms described in Figure P4.1:

Figure P4.1. Components or Subprograms



Each component in turn has specific objectives, entails a series of activities, and requires financial, physical, and human resources, as well as a period of time for its implementation. A general description of the content of each component is provided below.

Information and Communication Component

The information and communication mechanisms launched in the analytical stage must continue during the resettlement program formulation phase to facilitate participation in this process by the community and stakeholders concerned.

Objectives

This component has two objectives:

- To inform and consult the community regarding the content and scope of each component of the resettlement program.

- To have in place communication channels to address the questions and concerns of individuals and the community during the program formulation and implementation stages.

Information and Communication Mechanisms

Since, in a collective resettlement, people will be moved to a single site and must rebuild their community in the new environment, the most appropriate information mechanism is the community meeting. It can be used as follows:

- For in-depth presentation of all information related to each resettlement program component
- To answer any questions and concerns people may have during the process
- To make consensus-based decisions regarding actions to be carried out
- To reach agreement on the responsibilities of each party.

Additionally, the fact that issues are debated openly and publicly ensures transparency and avoids the perception that some people are being accorded preferential treatment or that different messages are being sent. In planning these meetings, the same guidelines should be used as those indicated in phase 3 and in the analytical stage: if the population is large, several meetings should be held, so that the entire population has an opportunity to participate and receive the information directly.

In addition to community meetings, any local offices, Web pages, or systems for sending out e-mail that were established in earlier stages should continue to operate under the agreements previously established with the community.

For the resettlement program implementation stage, individual information and communication with each family and social unit acquires greater importance, since this is the time when people must make decisions regarding the resettlement options, and when the greatest concerns and reservations arise. In the implementation stage, communication also becomes a form of psychological support because it helps people feel cared for and supported. Therefore, in addition to attendance in local offices, the social specialists assigned by the population group should plan periodic visits to the families and social units to ascertain their situation and provide all information required to prepare for their move.

Topics

In formulating a collective resettlement program, the community should be informed about and consulted concerning the following matters:

- Mechanisms for selecting the land for the resettlement
- The spatial planning design of the resettlement
- Housing types
- The public services, health and educational facilities, and community infrastructure the resettlement will have, and the types of services offered by each

- Housing allocation mechanisms
- The types of economic and social development projects that will be included.
- How each of these matters will be handled is discussed in each component described below.

During the implementation of the resettlement program, the community should be informed of the following issues:

- The progress in the implementation of each component (land acquisition, land preparation, construction of housing and infrastructure, moving schedule, etc.)
- Budgetary plan and its execution
- Problems faced and measures to address them.
- The information presented during the program implementation contributes to the transparency of the process, and thus serves to reinforce trust in the institutions and to prevent conflicts. As mentioned before, information regarding the situation of each family and social unit is provided individually, through the local office or visits to the families and social units.

Collective resettlement requires land to build the houses and infrastructure so that the population can be moved. The characteristics and location of the land are key factors in successful outcomes in resettlement.

Land Component

Collective resettlement requires land to build the houses and infrastructure so that the population can be moved. The characteristics and location of the land are key factors in successful outcomes in resettlement.

Objectives

This component has the following objectives:

- To acquire the land required for resettlement of the population
- To ensure that the land acquired has the characteristics that make it possible to reestablish the socioeconomic conditions of the population to be resettled
- To reach agreement and consensus with the population to be resettled and the host population regarding the land selected
- To distribute the land in accordance with the type of settlement determined on and the needs of the population
- To define the activities required for land preparation.

Scope of Activities

The land acquisition component and the preparation of the land to build the resettlement site involve the activities described below:

Land selection

The land must meet certain criteria that are crucial to the success of a collective resettlement.

ment. These criteria should therefore be defined to serve as guidance in the land selection process. They include the following:

- **Compliance with existing land use plans.** The use to be made of the resettlement land must comply with the land use plans, including the type of activity that may be pursued (residential, industrial, commercial, agricultural, animal husbandry, forestry, etc.) and conditions of safety for human settlement as regards the absence of disaster risk.
- **Safety.** If no land use plans indicating natural hazards and risks exist, the corresponding studies should be conducted to establish that the potential land has no manifestations of natural hazards that could pose a risk to the population.
- **Location.** It is crucial that the location of the land provide access to workplaces, markets, and transportation so that the resettled population can travel.
- **Property titles.** There should be no legal issues regarding the land so that property rights can be transferred to the resettled population.
- **Soil quality.** This criterion is decisive in the case of populations pursuing agricultural or animal husbandry activities. Soil quality must correspond to the use to be made of the land.
- **Access roads.** The resettlement site should have access roads to allow the population to travel to workplaces and service centers. If access roads must be built, the associated costs must be considered at the time land is selected.
- **Social service centers.** Consideration should be given to the proximity of schools and health centers to receive the resettled population. If this infrastructure must be built, this fact should also be taken into account when the land selection is made.
- **Access to public services.** Consideration should be given to whether there are water supply, sanitation, and electricity networks to bring services to the new settlement. If not, it is necessary to define how these services will be provided and the associated costs.
- **Land value.** Depending on the market values identified in the preceding phase, the price ranges within which land can be purchased should be defined.
- **Compatibility of the host and resettled populations.** An analysis needs to be made of the socioeconomic and cultural characteristics of the population living next to the available land being considered, in order to determine whether it is compatible with the population to be resettled, or whether there may be factors that could lead to disputes. Ethnic, religious, social, economic, or cultural issues can sometimes trigger disputes among population groups.

The resettlement site should have access roads to allow the population to travel to workplaces and service centers. If access roads must be built, the associated costs must be considered at the time land is selected.

Searching for and preselecting land for the resettlement

The mechanisms that will be used to search for land should be specified. Consideration may be given to engaging the services of individuals or companies with real estate experience, or forming committees composed of representatives of the entity in charge of the resettlement program, relevant government entities, and community representatives. Participation by the community contributes to an understanding of the potential difficulties of the process and promotes community contributions to the search for solutions.

Depending on the study of the supply of land conducted in the preceding phase, land can be classified as public (belonging to territorial entities or government institutions) or private. Activities to increase the information on the supply of land and the approach to applying the selection criteria should be established.

Selecting land for the resettlement and mechanisms for consultation with the population to be resettled

To be defined are activities for comparative analysis, based on the established criteria, of the land identified, the mechanisms for consultation with and participation by the population to be resettled in selecting the land, and activities to be carried out so that the population can make an informed decision. These activities include visits to the different sites and workshops for joint analysis of the advantages and disadvantages of each available piece of land.

Depending on the characteristics of the population and the specific situation, consideration may be given either to the consensus method or to a vote. Each method involves different activities. If a vote is chosen, how and when the voting will be conducted should be defined, as well as the composition of the vote tabulation committee (for example, representatives of the entity in charge of the resettlement, the oversight entities, and the community). It is recommended that consultations and final decisions be taken at community meetings so that everyone has the information and the minutes of the agreements reached can be signed.

When a property of adequate size cannot be found to house all families and social units to be resettled, several lots should be selected, meaning that additional criteria must be formulated for determining the families and social units that will be moved to each piece of land.

Mechanisms for consultation with host populations

If there are inhabitants near the land selected, mechanisms must be defined for consultation with the host populations regarding the resettlement of population. Since, among other things, information on the supply of social services in the area and the assessment of access roads and transportation systems are now available, these communities can also be informed of the infrastructure that will be built, expanded, or improved in the area to handle the additional demand of the resettled population and to improve these services to them. It is advisable to sign agreements with the host communities regarding acceptance of the population resettlement in the area and any services they will receive.

Land acquisition mechanisms

The activities should be defined in detail for acquiring the private land or for the transfer of public lots. In purchasing private land, a valuation or assessment should be made of the property offered, and the national laws on the purchase process should be applied. For the transfer of public land, inter-institutional agreements and approvals by different authorities within each entity are required. Therefore, the specific activities will depend on the ownership of the land selected for the resettlement and on national legislation and procedures.

Breaking up the land into subplots

It is important to define the activities required to subdivide the land acquired into individual lots (for example, topographical surveys, soil quality surveys, and spatial planning and physical demarcation surveys, among others) so that the lots are equitable with regard to characteristics and conditions. To that end, the following should be taken into account:

- The type of uses to be made of the land. Uses include residential, commercial, industrial, agricultural, and animal husbandry, among others. In the case of agricultural uses, in-depth soil studies should be conducted to determine the quality of the soil in order to plan the distribution of land among those resettled.
- The areas required for public services infrastructure, social services, and community facilities.
- Lot size. This is established based on existing national or regional legislation and regulations (rules are usually in place stipulating minimum or maximum sizes of rural or urban properties) and on any criteria established under the resettlement program. In the case of rural resettlements, it is not always possible to reproduce the sizes that the population formerly had. In such situations, size ranges are established based on the types of land that the population formerly had.
- The topography of the land.
- Natural drainage conditions.

Mechanisms for consultation on designing the spatial distribution of the land and lot size

Mechanisms should be defined for consultation on designing the spatial distribution of the land in keeping with the infrastructure to be built (such as housing, services, internal roads, community facilities), areas for agricultural and livestock production, forestry reserves, and any other infrastructure required in the resettlement.

It is highly beneficial to use maps and models and to visit the properties where possible designs are shown. As in all cases of consultation, it is advisable for minutes of agreements to be signed.

Preparing the land

The activities required to prepare the land must be established. In urban resettlement or in the residential use area, preparation entails clearing and preparing the land for construction of infrastructure and housing. In the case of rural resettlements that include agricultural uses, land preparation involves the work required to sow crops or establish pasture, or any improvement so that these activities can be carried out.

The forms of participation by the community in these tasks should also be defined. The population to be resettled may participate by contributing labor or may be hired by the entity in charge of the process as a way to generate income.

Infrastructure and Access to Services Component

This component entails the design and construction of all infrastructure works required for resettlement of the population, such as these:

- Housing
- Structures associated with the productive activities that will be pursued by the population to be resettled
- Public services infrastructure (water, power, sanitation, transportation, communications)
- Social services institutions (education and health)
- Community facilities (community centers, churches, parks, marketplaces, recreation areas, etc.)

Objectives

This component has two objectives:

- To design and build the housing, structures, and infrastructure required for the resettlement
- To ensure that the economic, social, and cultural activities of the resettled population can be reproduced and to facilitate the population's integration with the host population.

Scope of Activities

In order to achieve the objectives above, the following activities should be conducted:

Designing housing and other private structures

The criteria should be established for designing the housing and other structures associated with the productive activities pursued by the population to be resettled (for example, commercial and industrial premises, barns, etc.). These criteria include the following:

- **Size.** Housing size can be decided based on the number of family members or by establishing size types corresponding to the housing that families formerly had. One common practice in the case of low-income populations that did not have adequate housing is to build a basic unit that can subsequently be enlarged. The size of the other structures will depend on the uses for which they are intended (business, industry, etc.) and the legislation and regulations in force in this area.
- **Adaptation of housing for persons with disabilities.** It is necessary to identify, based on the census results, which families have a family members with a disability, as well as the type of disability and considerations that need to be taken into account in designing housing for those families.
- **Construction materials.** It is best to use local materials to reduce costs and facilitate maintenance. Materials should be culturally appropriate.

- **Types of finishings.** A decision should be made about the types of finishings the housing and structures to be provided will have.
- **Type and use of open areas.** Open areas should be designed in keeping with the cultural characteristics of the population. The information compiled during the analytical stage, especially the inventory of housing and structures, provides highly useful information for these designs.

Construction of housing and other individual infrastructure

It is necessary to decide which approach to take in building the housing and productive structures, since each approach involves different activities. The different approaches to construction are as follows:

- **Contracts with specialized private firms.** It must be decided whether these firms will also develop the designs or only perform the construction. Activities should be established for the contracting process consistent with national legislation and regulations in force, as well as supplementary contracts for works supervision. In some cases, housing projects of private firms may be identified that meet the criteria of the population resettlement, a step that may expedite the resettlement process.
- **Agreements with government housing institutes.** If government agencies specializing in this area exist, housing construction agreements can be concluded with them. In that case, activities for preparing and signing agreements between entities should be defined.
- **Assisted self-construction.** Self-construction is an approach that generates secondary benefits, such as training in construction-related tasks, a greater sense of ownership of the housing by the population, and stronger community ties. A self-construction process does not mean that the families are left to themselves in the process. This approach calls for
 - community organization to ensure mutual assistance among families, so that those unable to perform the construction receive support from other families in exchange for helping those families with other activities (e.g., child care, food preparation, cleaning activities, shopping, etc.);
 - training in construction-related tasks;
 - guidance and supervision of the construction process by experienced individuals; and
 - sufficient construction materials provided in a timely manner.

Public services and designing and building service networks

Depending on the characteristics of the area where the population will be resettled, decisions can be made about the types of services to be supplied—water, sanitation, power, roads, and transportation—and how they will be provided. These decisions can be made only when the land has been selected.

Also to be defined is who will design and build the public service networks, whether external firms must be engaged, and the activities this step will entail.

Participation by companies providing these services needs to be considered for the review and approval of designs, the receipt of works, and the opening of individual accounts.

The construction of these services can be used as a means of integrating the resettled population with the host population. To benefit the host population, existing networks throughout the area can be improved, or the host population can be included in the coverage of the new networks.

Training in adjustment to housing, efficient and safe use of public services, and a culture of payment

When the population to be resettled lacks some public services where it currently lives (this is the case especially when the displaced population was living in extreme poverty), people do not have the skills for their efficient and proper use. The result is a rapid deterioration of infrastructure (for example blocked sewer pipes) and high consumption rates (for example, leaving lights on all day or leaving water taps open), which in turn translate into high costs for new users or risks from misuse of electricity.

In these cases, activities need to be included to facilitate families' adjustment to the new housing, to provide training about the efficient and safe use of services, and to develop a culture of taking care of public service networks and of payment.

The training activities should cover the entire population, and it is highly useful to design different activities for women, men, youth, and children.

Analysis of the socioeconomic study of housing and services available to the population at its current site, along with analysis of the population's characteristics and levels of consumption and payment, is the basis for designing training activities mentioned above and for identifying areas that should be strengthened.

The training activities should cover the entire population, and it is highly useful to design different activities for women, men, youth, and children.

Social services infrastructure

Based on the results of the census of the population to be resettled, the demand for education and health services should be ascertained, thus determining the type of social services the settlement will have and the approach to building the associated facilities.

When the land for the resettlement has been selected, and depending on the supply of these services in the area, a decision is taken as to whether new facilities need to be built or existing ones expanded to handle the demand of the resettled population.

As in the case of public services, this is an opportunity for integration of the resettled and host populations. If new facilities need to be built, the demand of the host population should be analyzed to ensure that the school-age population can be enrolled in the new schools and everyone can receive care at the health center.

It is also necessary for the entities in charge of providing these services to participate so they can ensure that the designs conform to the required standards and approve them. When the works are completed, these entities should officially take receipt of them so that they can operate and maintain them.

Community service infrastructure

Depending on the characteristics of the population and type of settlement, a decision is made regarding the community infrastructure to be built, for example community meeting rooms, churches, recreation areas, parks, marketplaces, and sports fields, among others. The decision as to whether new buildings need to be built or existing ones improved can be taken only when the land for the resettlement has been selected; the principle of integration of resettled and host communities should be applied here, since these facilities may exist in the new area and need only be improved.

Mechanisms should be designed for consultation with the community regarding designs, for the community's participation in construction, and for receipt of structures by the relevant community or entities, which should also receive rules for the operation and maintenance of works.

Mechanisms for consultation with the population to be resettled and the host population

Mechanisms should be established for consultation with the population to be resettled regarding the characteristics and designs of the housing and other infrastructure works. For these consultations, different media need to be used because people commonly do not know how to interpret architectural designs. The use of models or model housing is highly useful.

The population to be resettled and the host population should also be consulted regarding the delivery of public and social services, and community facilities. The responsibilities of those participating in the process—the entity in charge of the resettlement, the entities in charge of delivering these services, and the communities—also need to be established. It is advisable to conclude agreements that establish the obligations and responsibilities of each of these parties.

Component for Delivery of Housing and Productive Units, and the Move

This component includes allocating housing or productive units to the social units (families and economic units), awarding them title, and moving the population.

Objectives

This component has two objectives:

- To assign the house or productive unit and award title
- To facilitate the rebuilding of social and economic networks.

Scope of Activities

The delivery and assigning of houses and productive units entails the following activities:

Mechanisms should be established for consultation with the population to be resettled regarding the characteristics and designs of the housing and other infrastructure works.

Assigning housing and productive units

When the land acquired has been subdivided and the spatial planning designed, activities should be defined to assign the individual housing or productive units to the families and economic units. This is a complex process; former neighbors may regret being separated, or people may welcome the opportunity to have different neighbors. Disputes may arise because inevitably the locations of some dwellings or productive units are better than others (depending on their proximity to main roads, schools, or other establishments).

The assigning of housing and productive units in a resettlement process may become a factor facilitating the adjustment and rebuilding of social and economic networks, or may become a cause of conflict. Therefore, mechanisms must be designed that promote the rebuilding of these networks.

The assigning of housing and productive units in a resettlement process may become a factor facilitating the adjustment and rebuilding of social and economic networks, or may become a cause of conflict. Therefore, mechanisms must be designed that promote the rebuilding of these networks.

The public lottery is a useful mechanism when one-time neighbors cannot be kept together or when people do not wish to remain together. To that end, the families are organized into subgroups in accordance with the neighbors they wish to have and housing lotteries are conducted for each family subgroup. The same method can be used for allocating productive units. This mechanism is used frequently because it is generally found that families wish to take the opportunity of resettlement to reorganize their relations with neighbors. When the level of cohesion is very low, individual public lotteries can be organized.

When the lottery is chosen as a mechanism for assigning housing, those participating sometimes agree to give priority to households where a family member has a disability; that household would not participate in the lottery.

Awarding title

All required steps should be defined for awarding title to the families and social units consistent with national legislation and the procedures of the entity in charge of the process.

One recommended practice is to award titles as family assets, not only to the head of household, in order to protect the assets of the women and children. In some cases, restrictions on sale are also imposed for some years to prevent the resettlement program from being used as an opportunity for financial gain.

The move

In planning the move, consideration should be given to four important issues: logistics, psychological reactions, timing, and level of risk.

- *Logistics.* This refers to all elements required to move people's belongings to their new housing or workplace (for example, transport, packing) and other related elements, such as food on the day of the move, care for children and animals, etc. In moving productive units, account should be taken of the equipment and machinery that must be dismantled, moved, and reinstalled at the new site.

Different approaches may be taken to moving people, belongings, machinery, and equipment; any of these approaches must take account of the number of people and volume of goods, equipment, machinery, and animals to be moved. Possible approaches are these:

- Offering means of transport. For example, government institutions may provide vehicles for the move.
 - Engaging transport services. The entity in charge may conclude a contract with companies for the provision of transport services.
 - Offering payment to people being moved. This is done so that people can engage transport services on an individual basis.
- *Psychological reactions.* In cases where the population has deep ties to the housing and area it will leave, the move is the most difficult time from a psychological standpoint because it is the time when the loss is faced and all emotional bonds to the environment broken. To support the population in that process and based on its cultural patterns, farewell ceremonies and rituals may be organized. Some people may need special support.
 - *Timing of the move.* The dates of the move are set in keeping with the communities' production, school, and cultural cycles so that they are not interrupted. For example, the move might be scheduled for after the harvest or the end of the school year.
 - *Level of risk.* Based on the results of the risk studies conducted in phase 2, the population was classified by risk level (high, moderate, low). Moves should be scheduled to give priority to the families and social units whose risk levels are higher.

In cases where the population has deep ties to the housing and area it will leave, the move is the most difficult time from a psychological standpoint because it is the time when the loss is faced and all emotional bonds to the environment broken.

Receipt of housing by the families and social units

This is the physical delivery of the housing or productive unit to the families and social units at the new settlement and their receipt of it. When the housing is delivered, the head of household or social unit should sign a note of receipt of the housing, specifying his or her responsibilities in connection with its maintenance and with payment for services and of taxes. Reception should also include the delivery of the following:

- Blueprints for the housing or structures delivered (for future work or repairs)
- Blueprints for enlarging the housing (where basic units that can be enlarged are delivered), as well as the rules to be followed and requirements to be met when any additions are made
- Handbooks on using the housing, structures, and their fixtures
- Handbooks of rules for peaceful coexistence.

The delivery of housing may also become an activity to facilitate neighborly integration and reduce the anxiety associated with the move. In addition to having the social specialist participate in delivering the housing, reception committees can be formed with neighbors to welcome the families.

Mechanisms for consultation and consensus with the population to be resettled

Mechanisms should be established for consultation and consensus with the population to be resettled on the criteria for assigning housing, awarding title, and moving. It is important to make a written record of the agreements reached, which should reflect the responsibilities of the parties.

Economic Development Component

When people's income or survival strategies are unrelated to their housing or surroundings, resettlement becomes a change of housing and, generally, does not have negative economic impacts. However, when people pursue economic activities on their property or in the area, resettlement takes on an additional dimension and complexity since projects must be formulated to reestablish the economic activities and income of the population. The type of economic development project depends on the population's former economic activity (for example, agriculture, animal husbandry, fishing, resource extraction, craft industries, etc.), the scale on which it is pursued, the technology employed, and the marketing processes, among other things.

Sometimes the characteristics and location of the resettlement site afford opportunities to pursue new economic activities that may benefit the population. The development of these opportunities will depend on participation by the institutions in charge of promoting such projects or by nongovernmental organizations with relevant experience. Taking advantage of these opportunities offers the possibility of turning a resettlement program into a development program to improve the living conditions of the population.

Objectives

This component has four objectives:

- To reestablish the economic activities and income of the resettled population
- To support the population in developing new economic opportunities
- To promote ownership and sustainability
- To promote the integration of the resettled and the host populations.

The specific activities that will support the restoration of the relocated populations' economic activities or sources of income should be design based on the specific characteristics of the population involved and the type of losses they will face.

Scope of Activities

The specific activities that will support the restoration of the relocated populations' economic activities or sources of income should be design based on the specific characteristics of the population involved and the type of losses they will face. For that reason, only some general guidance is presented below about key considerations that should be taken into account in formulating these types of projects.

Projects to reestablish economic activities

Based on the results of the socioeconomic study and the characteristics of and opportu-

nities in the new settlement, projects can be designed to reestablish economic activities and income, including agricultural, animal husbandry, industrial, business, and service projects.

For each project formulated, a feasibility study and a cost-benefit study should be conducted to determine the likelihood of success and the profit margin. For productive projects, the required natural resources and raw materials, the inputs involved in the process, the technology required, and marketing channels must be identified. Any missing link in this chain may cause a productive project to fail. The productive projects should be formulated before resettlement in order to implement them as soon as the population has been moved.

In the case of projects for business, industrial, or service activities, the main objective involves reestablishing clientele and income.

Productive projects may include training to raise productivity levels and increase profit margins. Training can cover technical, managerial, accountancy, and customer service aspects, among others.

Depending on the characteristics of the host communities, consideration may be given to including them in these projects.

Subsistence support while income is reestablished

Moving an economic unit to a new place entails loss of income from the time of the move until income and levels of production or sales volumes are reestablished. This period varies depending on the economic activity pursued. For agricultural activities, it depends on the type of crop and the time involved from soil preparation and sowing to harvesting and marketing the crop. For business, industrial, and service activities, this period lasts until clientele and sales volumes are reestablished.

During these periods, activities must be carried out to support individuals in earning income. Examples of different strategies that may be used for this purpose are the following:

- Hiring people to carry out some activities of the resettlement process on a remunerated basis
- Offering cash compensation
- Donating food or providing vouchers

The choice of strategy is based on the characteristics of the people, economic activities, and possible types of control. The important rule is not to create dependence, to which end criteria can be defined for accessing the supports provided (for example, remaining in the resettlement, participating in any planned activities, sending children to the school, carrying out activities to reestablish the economic activity, etc.). It is also important to set the periods when supports will be received and sign shared-responsibility agreements with the heads of each economic unit.

It is also important to set the periods when supports will be received and sign shared-responsibility agreements with the heads of each economic unit.

Loss of income may be total or partial, depending on the income source impacted. For example, an agricultural producer or business owner whose income is derived solely from that activity will lose all of it, whereas an individual whose job is not affected by the move but who rents out part of his property will incur partial loss. Losses may be classified by percentage. The census and socioeconomic study information is the basis for determining these percentages and defining criteria and ranges for support.

Projects taking advantage of new economic development opportunities

As mentioned above, the resettlement site may have comparative advantages affording the population new economic development opportunities. Depending on the decisions made in that regard, activities may be included for analysis of these options and formulation of specific projects.

Mechanisms for community consultation and participation

In a resettlement process, one of the greatest challenges is to reestablish economic activities; these must be properly planned, and active participation in them is required. Therefore, a decision must be made regarding consultation mechanisms and forms of participation in formulating and executing productive projects and projects for reestablishing income, and in defining the criteria for accessing the support provided by institutions. The goal is to avoid creating dependence and to create conditions promoting the population's prompt self-management.

In a resettlement process, one of the greatest challenges is to reestablish economic activities; these must be properly planned, and active participation in them is required.

Social Development Component

Under this component, activities should be planned for reestablishing access to education and health services, fostering community organization, and taking ownership of the new habitat.

Objectives

This component has four objectives:

- Restoring access to education and health services
- Promoting ownership of the new habitat
- Promoting self-management
- Promoting integration of the resettled and host populations.

Scope of Activities

Some of the activities that could be conducted to achieve the above objectives are the following:

Reestablishing access to education and health services

It is necessary to plan the delivery of the new health and education facilities to the entities in charge of their operation and maintenance based on the agreements concluded

prior to designing the works. Once the facilities are in operation, enrolment of the school-age population in education centers and registration of the population in the health center must be encouraged.

Depending on the population's characteristics and needs, and with the participation of the entities in charge, various educational campaigns can be conducted, including, for example, campaigns promoting preventive health care, literacy, and informal educational activities for adults and other population groups (women, producers, etc.). These measures help improve the living conditions of the resettled and host populations and are excellent means of facilitating the integration of the communities.

Community organization and ownership of the new habitat

In a resettlement process, patterns of community organization may be altered, either because not all of the population is being moved to the same area, because social organizations have broken down in the process, or because new leadership and organizations emerge.

It is crucial to promote the reorganization of the resettled population to encourage self-management. Most countries have some types of community organizations promoted and recognized by the government, with specific regulations on their establishment, election of members, and operation. Informal organizations may also exist, such as those for women, youth, producers, religious groups, or cultural groups.

Existing organizations of this type should be supported, and the creation of new ones promoted; training should be provided to them for their leadership and operation and for preparing and implementing their work plans.

Creating such organizations also enables communities to receive the community facilities (marketplaces, parks, community centers, churches, etc.) that were built for them to use and maintain. Receipt should be formalized through the signature of agreements committing the communities to their proper use and management.

For harmonious relations in collective resettlement, the community must be supported in defining rules for coexistence. To that end, workshops may be scheduled by age group, gender, and occupation so that these groups can develop relevant rules for coexistence and ways of enforcing them. When the rules and enforcement mechanisms have been defined, they should be published and provided to all members of the community, and acceptance agreements signed.

Individual Resettlement Program

As mentioned in the last chapter, this alternative utilizes the real estate market in the area where the resettlement program is being implemented, and advice is provided to ensure that the housing of the population is replaced and its living conditions reestablished.

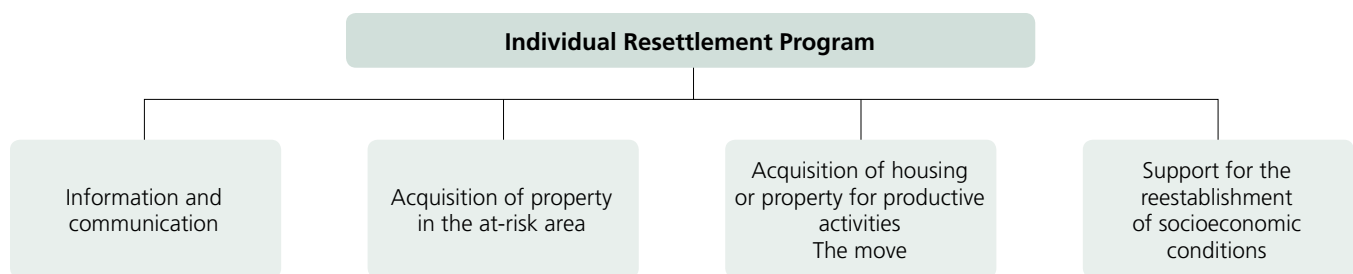
It is crucial to promote the reorganization of the resettled population to encourage self-management.

This resettlement alternative is appropriate in the following circumstances, generally found in large and medium-sized cities:

- Low level of cohesion among the population to be resettled
- Minimal social and economic networks among the population to be resettled
- A supply of property on the market geared to the needs of the population to be resettled
- Sufficient compensation to purchase adequate, lawful, and safe housing on the market.

An individual resettlement program consists of the components or subprograms described in Figure P4.2:

Figure P4.2. Components or Subprograms



As in collective resettlement programs, each component has specific objectives, entails different activities, and requires financial, physical, and human resources, as well as a period of time for its implementation. A general description of the components is provided below.

Information and Communication Component

Information and communication mechanisms should also be utilized in formulating an individual resettlement program.

Objectives

This component has two objectives:

- To inform and consult with the community regarding the content and scope of each component comprising the resettlement program
- To have communication channels for addressing the questions and concerns of individuals and the community during the program formulation and implementation stages.

Information and Communication Mechanisms

In the planning stage of individual resettlement programs, community meetings are appropriate mechanisms for providing information on the content and scope of the different components, and on all procedures and requirements related to them.

In addition to community meetings, any local offices, Web pages, or systems for sending out e-mail that were established in earlier stages should continue to operate under the agreements previously concluded with the community.

In the implementation stage, individual information and communication is of paramount importance since each family and social unit will be seeking its individual solution. Therefore, the role of the team of specialists is decisive in providing timely and clear information on the process of transferring the at-risk property, on the properties available to purchase as a replacement property, and on legal aspects related to the process. Attendance at the local office and home visits to families become the most widely used mechanisms.

Topics

In formulating an individual resettlement program, the topics on which information is provided and the community consulted are these:

- The method of valuation or assessment, if one is made
- Type and amount of cash compensation
- Form of payment and schedule
- Mechanisms for searching for replacement housing and property
- Criteria for approval of the replacement housing or property
- Types of advice and supports families or social units will receive.

Component on Acquiring Properties in the At-Risk Area

To ensure that families and social units have the resources needed to purchase on the market a property geared to their needs (housing or productive activity) and expectations, individual resettlement is based on payment of compensation for the property the individuals have in the at-risk area, additional compensation if there is any loss of income, and compensation to cover the costs of moving and acquiring title.

When the individuals in the at-risk area do not have title to the land they occupy and/or their housing is precarious and low-cost, one option is to provide a subsidy in an amount sufficient to purchase a property on the market.

In some cases a combination of these two options is offered: compensation for the value of the land and/or built structures, plus an additional subsidy so that housing can be purchased on the market.

Objectives

This component has two objectives:

- To acquire properties in the at-risk area in order to control new settlements and ensure uses consistent with the risk conditions
- To provide financial resources to people to be resettled so they can purchase a replacement property on the market.

When the individuals in the at-risk area do not have title to the land they occupy and/or their housing is precarious and low-cost, one option is to provide a subsidy in an amount sufficient to purchase a property on the market.

Scope of Activities

For each of the options mentioned above—compensation for the property plus compensation for lost income and costs associated with the move and acquisition of title; or a subsidy to purchase housing; or a combination of the two—different activities are required. Activities for the first and last alternative are described below; for the second—a subsidy—it is only necessary to determine the amount and to perform the administrative procedures for its payment.

Topographical surveys

To determine the area of the land and structures and the characteristics of each, topographical surveys of the properties need to be made. These are done by experts in this field (topographers, surveyors).

The result of these surveys is an individual survey map of each property containing a detailed description of the land (area, topographical characteristics) and structures (area, materials, and condition of the structure).

Activities must be scheduled to conduct these surveys, which may be performed by teams of experts from the entity in charge of resettlement program implementation, or by services engaged to perform them. Each alternative entails different amounts of time and different activities.

Heads of households or productive units should be informed in advance of the visit to be made to their property to perform the surveys, and they should be present during the survey to be certain that all characteristics of the land and structures were included. After the survey maps have been prepared, they are given to the head of each social unit for review, approval, and signature.

Property valuations or appraisals

When the topographical blueprints have been reviewed by both the entity in charge and the heads of the social units, the property valuation can be conducted. In general, countries define which entities or individuals are authorized to make property valuations and have their own procedures. In any event, it is important for the head of household or productive unit to be present at the time of the valuation.

To ensure that the compensation amount is sufficient to purchase lawful and safe housing on the market, property valuations or assessments must not depreciate the property because of the risk situation, but rather must take account of the market value of the property based on its area, characteristics, and construction materials. This practice is based on the principle of shared responsibility of the state, since often the human settlement is at high risk owing to the lack of housing policies and programs for low-income population and/or to the absence of land use planning and settlement control in at-risk areas. It is sometimes found that the authorities have granted permits to build in such areas. It is also a duty of the state to protect the lives of citizens.

To ensure that the compensation amount is sufficient to purchase lawful and safe housing on the market, property valuations or assessments must not depreciate the property because of the risk situation,

When the value of the housing of the families located in the at-risk area does not reach the value of a dwelling on the market, either because they do not own the land or because their housing is highly precarious, the entity in charge of the resettlement may decide to provide a subsidy to make up the difference between the value of the compensation received and the market value of an adequate, lawful, and safe dwelling.

It is therefore necessary to plan the activities required to engage valuation services and to inform the heads of household and social units of the results.

Payment of compensation for the value of the property and additional compensations

The administrative steps should be defined to pay compensation for the value of the property and additional cash compensation.

For compensation payments, two options may be considered: payment to the head of household or economic unit, or direct payment to the seller of the replacement property. If subsidies are being given to purchase the replacement property, and to ensure that the resources received are spent for the intended purpose, the latter option is advisable.

In all cases, only one payment or, at most, two, should be made, to ensure that people have the money to purchase replacement housing. Payment should be made in a timely manner.

Additional financial compensation is awarded for the following reasons:

- **Loss of income.** Based on the results of the census and socioeconomic study, families or social units who may lose income as a result of the move are identified. This lost income may be derived from an economic activity on the property or in the area nearby, or by renting out part of the property. Depending on the type of activity and level of impact of displacement on income, criteria and amounts are established for this compensation. These payments are made for the time required to reestablish income. As in the case of collective resettlement, it is important to sign shared responsibility agreements with the heads of household or productive units that stipulate the criteria for receiving this compensation and its duration.
- **The move.** Compensation is offered to cover the costs of moving people and belongings to the new housing site or site where the economic activity will be pursued. As indicated for collective resettlement, ranges of values can be established depending on the quantity of belongings, equipment, machinery, and animals that must be moved, and the distance they are to be moved.
- **Notarization and registration.** In some countries, the procedures for notarizing and registering both the at-risk and the replacement properties entail a series of costs. These costs must be estimated to establish the amount to be paid for this item.

Notarization and registration of property in an at-risk area in the name of the entity in charge of its control

Based on the analysis of the entities in phase 2, a decision should be made about which entity will be in charge of controlling and rehabilitating the at-risk area so that the deeds for the lots in that area are executed in the name of that entity. Executing deeds in this way will provide legal authority to control and rehabilitate the area and to assign uses that do not expose people to disaster risk.

Component for Purchasing Replacement Housing or Property

As mentioned in the last chapter, the individual resettlement alternative does not consist solely of providing money so that people can relocate on their own. Given the risks that such a practice would entail, activities must be planned to provide advice and support to the families and social units in looking for and purchasing replacement property.

Objectives

This component has two objectives:

- To ensure the replacement of housing and property for the productive activities of the population to be resettled
- To ensure that the property purchased will make it possible to reestablish the social and economic conditions of the population to be resettled.

Scope of Activities

The following are among the activities that support people replacing their houses and properties:

Analysis of the real estate market

The different real estate market options that may be utilized are these:

- **New property market.** Available properties are offered on this market by private builders, government housing programs, and civil society housing organizations. Partnerships may also be formed with those that have housing projects so that they allocate a specific number of units to families to be resettled.
- **Existing housing market.** Existing real estate on this market is offered within the price ranges affordable to the population to be resettled.
- **Market for undeveloped plots.** This market offers individual plots on which the housing or type of structure required by the social unit (business, industrial premises, etc.) can be built, and where people themselves take charge of the construction of the housing or structure.
- **“Chess game.”** This option involves an exchange of housing between the population at the site that is outside the at-risk area and wishes to participate in the re-

settlement program, and families inside the at-risk area that do not wish to move from their neighborhood. This strategy becomes a win-win solution for families not wishing to leave the area and those not inside the perimeter of the risk area who are interested in resettling at the other site.¹

Based on the possibilities in the area where the resettlement is to be implemented, the feasible options are selected.

Support and advice for purchasing the replacement property

Activities must be defined to support families and social units in looking for and selecting the replacement property in order to ensure that the property they buy has no legal issues and is not located in the at-risk area. To that end, the following advisory activities must be designed:

- **Real estate advice.** Real estate experts analyze the supply of properties on the new and existing markets and prepare a portfolio from which families and social units may select a dwelling, farm, business or industrial premises, or any type of property they require. Additions can be made to this portfolio based on the information provided by the population itself in its search. It is also possible to enter into partnerships with private builders to supply housing. The fact that resettlement programs ensure private builders of a market is an incentive for them to develop housing programs.
- **Technical advice.** Based on this advice, technical experts (engineers, architects) evaluate any housing and structures that families or social units wish to buy, to ensure that they are not located in the at-risk area, that the location conforms to the stipulations of territorial land use plans, and that the housing conforms to construction standards so that its safety is ensured.
- **Legal advice.** This advice refers to the tenure study of the property offered for sale to determine that there are no legal difficulties in connection with the property (for example, intestate successions, seizure orders, mortgages, etc.)

Purchasing the replacement property

If a favorable technical and legal evaluation is made of a preselected property, it is approved for purchase. The purchase must follow the steps established in the relevant national legislation. Payment for the property is programmed in accordance with the option established (payment to the head of household or social unit to be resettled or direct payment to the seller of the property). Procedures should be in place to award the titles. To safeguard the rights of women and children, it is advisable for titles to be awarded in the name of the family and not only the head of household. Consideration may also be given to imposing restrictions on sale for some years in cases of families receiving a subsidy, as was indicated for collective resettlement.

Consideration may also be given to imposing restrictions on sale for some years in cases of families receiving a subsidy, as was indicated for collective resettlement.

The move

Based on the criteria mentioned above, activities should be planned for compensating families and social units for the move. The administrative steps for making these payments are also established, and these steps should be taken prior to the move.

Component on Support for Reestablishing Socioeconomic Conditions

In cases of individual resettlement, support is required for the families and social units in reestablishing their socioeconomic conditions at the new site. Therefore, activities to provide this support should be programmed.

Objectives

This component has four objectives:

- To facilitate the adaptation of families to the new housing
- To facilitate the integration of families into their new environment
- To reestablish access to education and health services
- To reestablish the economic activities and income of the resettled population.

Scope of Activities

The achievement of the above objectives entails the following activities:

Training for adjustment to housing, efficient and safe use of public services, and a culture of payment

As in the case of collective resettlement, training could be planned to facilitate families' adjustment to their new housing, to promote efficient and safe use of services, and to encourage a culture of care for public service networks and of payment.

Reestablishing access to education and health services

The individual resettlement alternative entails taking steps with education and health entities to ensure that the school-age population can be enrolled in schools at the site and registered to receive health services at the centers near the new housing site.

Reestablishing economic activities and income

For social units pursuing an economic activity in the at-risk area or receiving rental income, the characteristics and location of the replacement property must enable this activity to continue. This is the first condition in reestablishing the activity and income.

It is also necessary to provide advice and specific training on the activity to be reestablished. The results of the census and socioeconomic study make it possible to define the type of advice that must be provided according to the characteristic of the economic activity. Since social units with economic activities will receive cash compensation for loss of income for a period of time, the advice should cover the proper use of this compensation to facilitate the restoration of the activity.

Integrating families and social units into the new environment

The social team may identify social organizations in the resettlement area and introduce families to these organizations as support in promoting the integration of the families into their new environment.

As in the case of collective resettlement, training could be planned to facilitate families' adjustment to their new housing, to promote efficient and safe use of services, and to encourage a culture of care for public service networks and of payment.

Program to Reestablish the Conditions of the Resident Population Not Displaced

In cases where not all, but only part, of the population is being resettled, the studies of the analytical phase identify the impacts caused by this displacement to the population that will continue living at the site. At that stage, an agreement on measures to manage these impacts is reached, as was described in the last chapter.

In the planning phase, these measures must be designed to ensure that they are implemented in a timely manner in order to avoid negative impacts on the resident population.

Objectives

This program has three objectives:

- To avoid negative impacts on the resident population as a result of moving its neighbors
- To reestablish the social and economic conditions of the resident population
- To ensure the sustainability conditions of the human settlement remaining at the site.

Scope of Activities

The activities to be included in this program will depend on the specific impacts caused by relocating part of the community. The following are some of the areas that should be attended to in order to mitigate any adverse impact on the remaining population.

Information and communication

The communication channels established when the risk reduction plan was formulated can be used to inform the resident population about the design of the mitigation measures. Community meetings are appropriate mechanisms for providing information of general interest, whereas the offices are adequate for individualized service. During the implementation of the program, the population will be informed of the progress and results of the mitigation measures.

Public services

Public services (water, sanitation, power, transportation, and refuse collection) available to the population must continue to be provided effectively. In some cases, water, sanitation, or power distribution networks must be adjusted, or transportation routes for users' travel altered, because the number of users has declined, but it is important to ensure that the population continues to receive these services.

These activities should be planned with the service providers. The entity in charge of the resettlement is responsible for identifying the impacts and facilitating the relationship between these companies and the community in order to ensure that the community continues to receive good-quality services.

Social services

Based on the assessment of the impacts of displacement on education and health centers, as well as the measures identified in the analytical stage, steps should be taken to ensure that the population has ongoing access to these services.

As mentioned in the last chapter, these measures may range from adaptation of existing centers in keeping with the reduced demand to moving students to other schools and health centers nearby. In the first case, the quality of services provided must not be allowed to deteriorate, and in the second, the transfer to other centers must not entail additional transportation costs for the population. If costs increase, consideration may be given to providing transportation tickets as subsidy.

Community reorganization

If breakdown of social organizations or disruptions in developing social and cultural activities are caused by the relocation of part of the community, the program should include activities to support the resident population in rebuilding their social networks. Specific activities will depend on the type of impacts and the characteristics of communities remaining in place.

Reestablishing economic networks

To support the reestablishment of economic networks, should this prove necessary, a community fund might be created to replace sources of credit lost through the resettlement of neighbors. If, among impacts, businesses lose clientele, the possibility of expanding the clientele at the same location should be analyzed; if this is not possible, a potential measure is to include these economic units in the resettlement program.

Contingency Program

It should not be forgotten that resettlement is being planned because the population is at risk of disaster, and that the natural hazard may be triggered and an emergency arise. Therefore, it is essential to supplement preventive resettlement programs with contingency programs that can be implemented in the event the emergency occurs. In general, risk reduction plans include hazard monitoring, early warning systems, and contingency programs. Accordingly, this guide does not delve deeply into these matters, instead emphasizing elements that should be taken into account in these programs to underscore their importance in preparing resettlement programs.

Objective

The contingency program has a single main objective: to protect the lives and assets of at-risk persons while the resettlement program is being implemented.

it is essential to supplement preventive resettlement programs with contingency programs that can be implemented in the event the emergency occurs.

Scope of Activities

Some of the key topics that are included in these types of programs are the following:

Risk monitoring systems

Many countries have comprehensive disaster emergency prevention and response systems composed of several institutions with different responsibilities, among them risk monitoring and early warning systems management. Therefore, this activity is carried out by the entities with that responsibility within the system.

Risk monitoring depends on the type of hazard, for example, monitoring of hydrometeorological conditions in cases of floods, storms, and hurricanes; of soil behavior in cases of landslides; and of volcanic activity in cases of volcanic eruptions. This monitoring is included in disaster risk reduction plans, and it must be carried out in the at-risk area.

Early warning systems

These systems are designed to give prior warning to the competent authorities and institutions if the hazard is triggered and to enable the population to evacuate the area. If a disaster is imminent or actually occurs, these systems allow coordinating actions to be carried out for immediate response to protect the lives and assets of populations and to meet their urgent needs for shelter, food, health care, water, and clothing.

These systems are designed to give as much advance warning as possible, in a rapid, accessible, and clear way, to the institutions that are to respond and to the at-risk populations.

Therefore, in designing these systems, account should be taken of the characteristics of the at-risk population analyzed in the phase 2 (socioeconomic study), as well as the most effective media for warning the community. Once the communication media have been identified, the population must be consulted regarding their pertinence and effectiveness, and an agreement must be reached as to which will be utilized.

Evacuation routes

Another important element of contingency programs is designing evacuation routes to facilitate the population's orderly departure in case an emergency occurs. These routes should be decided with the communities in a participatory manner and signposted with symbols readily understood by all.

Participation by local authorities and relevant institutions

An interinstitutional network to manage an emergency should be created and the responsibilities of each institution (e.g., firemen, health, transportation, and public services institutions) defined. Sufficient resources should be allocated to these institutions to enable them to respond rapidly and effectively to any warnings they receive.

One key element of any contingency program is training for the population exposed to the risk to receive and understand early warning messages, evacuate in an orderly manner, take with them the most important items (identity document, legal documents, etc.), and know where they are to go.

It is also important to support educational institutions in formulating emergency plans.

Shelters for the evacuated population

Temporary shelters for the evacuated population should be identified according to the circumstances and while the resettlement program is being implemented. Several options exist, entailing different activities:

- **Use of public or religious facilities.** Community rooms, stadiums, sports facilities, schools, and churches can be used to provide accommodation for the population. This option requires that elements be provided so that families can be accommodated at these sites; ideally, space dividers would be available to preserve family privacy.
- **Construction of temporary shelters.** Tents can be used as an immediate housing solution and then simple facilities built. With this alternative, land must be available to build the shelters and provide basic services.
- **Temporary rental of housing for families.** If there is a supply of rental property on the market, rent payment subsidies may be provided to families until they receive the final housing solution.
- **Lodging with family members.** This option is appropriate for families with relatives who can house them temporarily. To relieve the receiving families of the cost involved, consideration may be given to paying rent or a food and services subsidy for the period they house the family.

Instruction and training for the population

One key element of any contingency program is training for the population exposed to the risk to receive and understand early warning messages, evacuate in an orderly manner, take with them the most important items (identity document, legal documents, etc.), and know where they are to go.

This training can be provided through workshops in which the population takes an active part in reaching agreement on the type of warning messages, determining the evacuation routes, and defining the shelter options. It is important for evacuation drills to be conducted to train the population.

The population should also be provided with advice and training on preparing their family emergency plans and deciding meeting places, and they should know who is in charge of the different emergency response activities and what the forms of response are.

Based on the census information, families that require special care because of their age (minor children or the elderly), gender (women heads of household), or disability should be identified, and specific measures should be designed to support them in an emergency. Social networks among neighbors can be highly useful.

Program for Reclaiming and Rehabilitating At-risk Land

Depending on the potential uses identified in the analytical stage for at-risk properties that will be unoccupied after the population has been moved, measures should be designed to reclaim the land and prevent new population from relocating to it.

The entity that will receive the properties for its use, control, and maintenance should participate actively in this program.

Objectives

- To reclaim at-risk land
- To ensure that there are no new settlements

Scope of Activities

The following activities are designed to achieve the objectives above:

Acquisition of the at-risk land

Land rights must be transferred to the entity that will receive the reclaimed land so that it can exercise effective control of new occupation, and reclaim and maintain the at-risk area.

The individual resettlement program described in detail the activities necessary to acquire land rights in at-risk area. If these rights were not acquired in the collective resettlement program, this must be done to achieve control of new settlements. Consideration may be given to exchanging the property in the at-risk area for the property received in the resettlement site. Therefore, the necessary activities should be defined so that land rights are registered in the name of the entity that will assume control and maintenance of the land.

Demolition and clearance

Activities should be planned for the demolition of all existing housing and structures to prevent their occupation and so that the areas can be adapted to the uses envisaged.

These activities include analysis of the construction materials to identify those that can be reused in construction or recycled for different purposes. Based on this classification, a decision is made regarding demolition techniques, sites for storage and transport of reusable materials, sites for disposal of waste materials, and the associated costs of these activities.

Demolition and lot clearance can be performed by the population that was resettled or the resident population, an activity that may become a temporary source of income. The resettled population may have priority in using the reusable materials. In resettlement programs where basic housing is provided that can subsequently be enlarged, giving these materials to families provides them with what they need for immediate additions to their housing.

Land preparation and rehabilitation

When demolition and lot clearance have been completed, the land must be prepared to the uses decided, whether parks, sports fields, community gardens, or any uses decided by the planning authorities or risk management experts and agreed on with the resident communities.

Adjustment and rehabilitation activities will vary according to type of use. Some will involve construction of some civil works, so the design and construction of these works must be planned.

Delivery to the entity in charge

The entity in charge of its management and control should officially receive the reclaimed area. In some cases, these entities carry out adjustment and rehabilitation works, and in others, they wait until works are completed to receive them and begin the operation, control, and maintenance of the area.

Participation by the community

As mentioned in the last chapter, success in ensuring that population does not again settle in the at-risk area is ensured by assigning it a community use that benefits the neighboring population, and fostering the community's active participation in the management and use of the reclaimed areas. Therefore, activities must be designed for the organization of and participation by the community in the appropriate use of these areas. If they are sports facilities or parks, the neighboring communities can maintain them, with or without remuneration, depending on the type of population and the program's objectives. In the case of community gardens, the community can be supported in their organization and management, and an analysis can be carried out determining whether they will produce solely for self-consumption or whether they may be an income source. Communities should receive training on these issues.

Handling of Complaints and Claims, and Dispute Resolution Mechanisms

The different programs should include the system for handling complaints and claims as well as the dispute resolution mechanisms designed in phase 2. The resources required for their implementation should be estimated.

The community should also be informed of the existence of these mechanisms, and should understand their procedures and how to access them.

Monitoring and Evaluation System

A monitoring and evaluation system is indispensable for assessing the progress of the resettlement program and for determining whether objectives are being. A brief description of this system is presented below.

Monitoring

Monitoring consists of observing, recording, and systematizing the activities of the programs implemented, specifically as regards resources, activities completed, and time frames and budgets envisaged. Its aim is to contribute to knowledge of the status of programs, determine the level of implementation, and ensure that timely and sufficient information is supplied so that corrections to programs can be made.

For monitoring to be carried out, each program component must establish the following:

- Objectives
- Results or targets
- Target population
- Date by which the established targets are to be achieved
- Indicators for results monitoring.

For example, the component for reestablishing access to education services may establish as a target that 100 percent of school-age children continue their studies after the move. The census provides information on the number of school-age children (target population) and as an indicator the percentage of children enrolled at the new settlement.

The following information may be determined through monitoring, applying the methodology proposed by Quintero (1995):

$$\text{Level of effectiveness} = \frac{\text{Target achieved}}{\text{target programmed}}$$

$$\text{Level of efficiency} = \frac{\text{Target achieved} \times \text{time planned}}{\text{target programmed} \times \text{real time}}$$

$$\text{Level of investment} = \frac{\text{Financial resources executed}}{\text{financial resources programmed}}$$

$$\text{Level of coverage} = \frac{\text{Resettled population}}{\text{population to be resettled}}$$

Monitoring makes it possible to determine the status of programs, and to identify factors that may be impeding their progress, obstacles that have arisen during their implementation, or defects in planning their implementation. All this provides the decision-making bodies with sufficient information to take corrective action in a timely manner so that the program can be redirected and the proposed objectives achieved.

Monitoring also serves as a channel for communication with the population and with the stakeholders involved because it provides them with information on the stage of implementation of each program, the reasons progress has been made, the obstacles being faced, and the date when they can expect the results.

The monitoring team must be organized and resources allocated to compile, process, and analyze information and to prepare the reports. Monitoring performed by independent teams and with community participation is highly effective in achieving credibility and transparency. The periodicity of the monitoring reports and their format should be agreed on with the communities and stakeholders concerned.

Evaluation

The aim of evaluation is to determine whether the proposed objectives were achieved. Evaluation is an estimate of the outputs, outcomes, effects, and impacts of the programs, and their sustainability.

Evaluation of outcomes consists of a conclusive determination of the status of implementation of each component and the expected outcomes. It entails as well a determination of whether other outcomes were achieved, even when these were not anticipated.

Evaluation of effectiveness consists of comparing what was achieved by implementing each activity with the proposed goal to see the extent to which the goal was fulfilled. This type of evaluation should determine whether the objectives were achieved and whether there were unintended effects that occurred as a result of program execution, including any negative impacts.

The *final evaluation of efficiency* of the project enables comparisons between the outputs and final outcomes obtained and the means employed. This is done by comparing what was achieved with the resources invested.

The *final evaluation of the strategy's pertinence* yields elements for analyzing the benefits and limitations of the model utilized and the policies applied.

Impact evaluation is the process of identifying, analyzing, and explaining changes in or modifications to the conditions of the target population and its environment through implementation of the programs.

The results of the evaluation should be supplemented by analyses of the causes of success or failure, and the causes of unanticipated achievements. It is important to determine whether unanticipated results stemmed from implementation of the program or from unrelated causes. For example, economic crises may impact the restoration of the population's income, or climatic conditions may impact crops.

As in the case of monitoring, evaluation also requires achievement indicators that are concrete, verifiable, measurable facts that can be evaluated. These indicators are established for each objective.

An ample reference literature exists on approaches to evaluation. One important requirement is that evaluation be undertaken by independent teams to ensure objectivity.

Evaluation serves not only to establish whether the proposed objectives were achieved, but also to enrich theoretical and practical knowledge and hence ensure the increasing effectiveness of social interventions. Rigorous evaluation provides excellent information for the replication of intervention strategies and for analysis of their applicability in different contexts.

An initial evaluation of a resettlement program can be made six months after the move, but to determine whether socioeconomic conditions were reestablished, another evaluation should be made at least two years following resettlement.

Presented below as guidance is a list of the variables and indicators that can be used in evaluating the outcomes and impacts of a resettlement program (matrix P4.1). Variables and indicators should be prepared for each program based on the context in which the intervention is taking place, the characteristics of the community, and the resettlement approach.

Matrix P4.1. Sample Variables and Indicators for Impact Evaluation in a Resettlement Program

Variable	Situation		Change			Cause
	Before	After	Positive	No change	Negative	
1. Property						
1.1 Area						
1.2 Location						
1.3 Risk situation						
2. Housing						
2.1 Location						
2.2 Size						
2.3 Materials						
2.4 Functionality						
2.5 Risk situation						
3. Public services						
3.1 Power <ul style="list-style-type: none"> ■ Access ■ Quality ■ Cost of service/month 						
3.2 Water <ul style="list-style-type: none"> ■ Access ■ Quality ■ Cost of service/month 						
3.3 Sanitation <ul style="list-style-type: none"> ■ Access ■ Quality ■ Cost of service/month 						
3.4 Telephone <ul style="list-style-type: none"> ■ Access ■ Quality ■ Cost of service/month 						
3.5 Refuse collection <ul style="list-style-type: none"> ■ Access ■ Quality ■ Cost of service/month 						
4. Social services						
4.1 Education <ul style="list-style-type: none"> ■ Access ■ Quality ■ Cost of service/month 						
4.2 Health <ul style="list-style-type: none"> ■ Access ■ Quality ■ Cost of service/month 						

Continues

Matrix P4.1. Continuation

Variable	Situation		Change			Cause
	Before	After	Positive	No change	Negative	
4. Social services (cont.)						
4.3 Transportation <ul style="list-style-type: none"> ▪ Access ▪ Quality ▪ Cost of service/month 						
4.4 Business <ul style="list-style-type: none"> ▪ Access ▪ Quality 						
4.5 Recreation <ul style="list-style-type: none"> ▪ Access ▪ Quality ▪ Cost of service/month 						
5. Economic activity						
5.1 Type of economic activity						
5.2 Income/month derived from economic activity						
5.3 Income/month derived from the property						
5.4 Income/month derived from the surrounding area						
5.5 Transportation cost/month						
5.6 Service cost/month						
5.7 Taxes/year						
5.8 Family income/month						
5.9 Family expenditure/month						
6. Family						
6.1 Family composition						
6.2 Health conditions						
6.3 Family relations						
6.4 Occupation/employment						
7. Social relations						
7.1 Relations with neighbors						
7.2 Community participation						
7.3 Mutual assistance						
8. Urban or rural setting						
8.1 Spatial organization						
8.2 Community facilities						
8.3 Environmental sanitation						
8.4 Safety						

Mechanisms for Participation in Monitoring and Evaluation

Participation by the communities and stakeholders concerned in monitoring and evaluation is an excellent way for them to understand the activities carried out to achieve the proposed objectives, and to gain awareness in a timely manner of difficulties that arise so that measures can be taken to overcome them. This participation goes a long way to reducing the anxiety caused by waiting for a result without knowing what is being done to achieve it.

Participation may take the form of selecting community representatives for analysis of information, but it is essential to disclose monitoring reports so that everyone has access to and can review them. Results can also be presented and discussed at community meetings and can be disseminated via Web pages or e-mail if these media are being used.

Timetable

When the resettlement, contingency, and reclaimed area rehabilitation programs have been designed, a detailed timetable is prepared of all activities, specifying the time each will take and the party in charge of its implementation. The timetable should include monitoring and evaluation of the programs, and should take into account that the final evaluation must be made several months after programs end; in some cases, at least two years later. The timetable should include any administrative steps that may be needed to engage services for carrying out activities.

Timetables make it possible to visualize how long each activity will take, its start and end dates, and the total time required to carry out each task. Some timetables are simple, such as Gantt charts, whose horizontal axis is a timeline (for example, showing day, week, month), and whose vertical axis shows the activities to be carried out. In the row for each activity, a line is drawn beginning on the date the activity begins and ending on the date it is scheduled to end.

More complex systems also exist, such as the critical path method (CPM) network technique and the Program Evaluation and Review Technique (PERT), which make it possible to identify the relationship and coordination among many interdependent activities. Through these techniques, critical paths are identified; this information is crucial because, if an activity is delayed, it will delay program execution as a whole. For activities not on the critical path, delay may occur without affecting program duration as a whole.

In planning the programs presented in this chapter, the network techniques are recommended, since these techniques are useful where there are many interdependent activities. For example, if there is a delay in acquiring land in a collective resettlement, other steps—construction of housing and infrastructure works, and moving of the population—will in turn be delayed, which may have implications for production cycles and the school calendar.

Different computer programs for effective monitoring now exist that show the links between the different activities (technical, financial, input procurement, land acquisition, and impact management), and that clearly show preceding activities, time required, progress made, delays, and resources used.

Budget

For each program and its respective components and activities, estimates should be made of the human, physical, and financial resources required for its implementation. In preparing the budget, it is important to determine what activities will be implemented directly by the entity in charge, what will be implemented by hired services (individuals or firms should be specified), and what will be implemented by other entities under interinstitutional agreements.

Estimates should also be made of the operating costs of the claims, complaints, and dispute resolution mechanisms and of monitoring and evaluation of programs.

Human Resources

The number, types, and profiles of professionals required depend on these factors:

- The resettlement approach (collective or individual)
- The size of the population to be displaced and its characteristics
- The economic activities to be reestablished
- The impacts on the resident and host populations
- The size of the at-risk area reclaimed.

If possible, the same interdisciplinary team that conducted the studies during the analytical stage can implement the different programs, given the level of knowledge it has gained and the relations it has established with the communities.

If possible, the same interdisciplinary team that conducted the studies during the analytical stage can implement the different programs, given the level of knowledge it has gained and the relations it has established with the communities. It is also advisable to maintain the organizational structure of the social specialists assigned to a specific number of families and social units. The basic team should be supplemented with any other professionals required to implement the program.

In general, social scientists, engineers, architects, attorneys, real estate experts, economists, and other professionals, depending on the economic activities to be reestablished, participate in implementing a resettlement program.

Estimates should also be made of the human resources required to carry out administrative tasks. The hiring and payment processes and other administrative matters occupy a great deal of time, and staff resources devoted to these tasks are needed.

As mentioned in phase 2, different activities can be carried out by engaging the services of professionals or consulting firms with experience in relevant areas. Activities such as designing and building housing and infrastructure, searching for housing on the market, and formulating and executing productive projects, among others, are activities for which services may be engaged.

Physical Resources

Estimates also need to be made of any physical resources required for implementation of the programs, such as vehicles, computers, offices, office supplies, and other materials needed to perform these activities.

Financial Resources

An estimate should be made of the total cost of implementing the programs, including human and physical resources, acquisition of land, and payments to be made (for example, the different forms of compensation).

Since not all resources are needed at the same time, budgetary programming is advisable to ascertain the time when the resources are needed, so as to ensure their availability.

Budgetary Sources

The funding sources should be defined. If institutional agreements will be concluded under which other entities contribute resources, these contributions should be specified in the budget, and it is advisable for such agreements to be formalized.

Preparing and Disseminating the Final Plan Document

The programs should be recorded in documents that are available to the participating institutions, the communities, and the other stakeholders concerned. Executive summaries that are readily understood by everyone may be prepared, as well as brochures, booklets, and videos illustrating the programs and the resettlement process. All documents should be written in the language or dialect spoken by the community.

Consultation and Reaching Final Consensus

Although the communities and relevant stakeholders have been informed and consulted with regarding each component of the programs, it is advisable to consult with the communities, the institutions, and the authorities that participate in implementing the different programs regarding the final document and to obtain their approval, so that there is only one official document. It is also advisable for oversight entities to participate in the consultation as observers of the process.

Box P4.2. Results of the Planning Phase of Resettlement, Contingency, and At risk Area Rehabilitation Programs

- Resettlement program formulated and agreed on with the communities and stakeholders involved
- Contingency program for emergency response designed and entities and communities trained for rapid and orderly evacuation
- Impact mitigation program for resident populations formulated and agreed on with the communities and institutions in charge
- Program for reclaimed land rehabilitation designed and agreed on with the entities involved
- Complaint, claim, and dispute resolution mechanisms incorporated in the programs
- Timetable and budget defined
- Monitoring and evaluation system designed and included in the budget and timetable

Note

1. This strategy was developed and has been successfully implemented in Brazil.

Reference

Quintero, Victor Manuel. 1995. *Evaluación de Proyectos Sociales. Construcción de Indicadores*. Colombia: Fundación para la Educación Superior FES. Bogotá



Acceptable risk

The level of potential losses that a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions.

Adaptation

The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

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.

Building code

A set of ordinances or regulations and associated standards intended to control aspects of the design, construction, materials, alteration and occupancy of structures that are necessary to ensure human safety and welfare, including resistance to collapse and damage.

Capacity

The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals.

Capacity Development

The process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions.

Climate change

- (a) 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 forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use”.
- (b) 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”.

* Reproduced from the UNIDR 2009. Terminology on Disaster Risk Reduction. Geneva, Switzerland. May. Retrieved from: http://unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf

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.

Coping capacity

The ability of people, organizations and systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters.

Corrective disaster risk management

Management activities that address and seek to correct or reduce disaster risks which are already present.

Critical facilities

The primary physical structures, technical facilities and systems which are socially, economically or operationally essential to the functioning of a society or community, both in routine circumstances and in the extreme circumstances of an emergency.

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.

Disaster risk

The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

Disaster risk management

The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.

Disaster risk reduction

The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

Disaster risk reduction plan

A document prepared by an authority, sector, organization or enterprise that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives.

Early warning system

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.

Ecosystem services

The benefits that people and communities obtain from ecosystems.

El Niño-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.

Emergency management

The organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and initial recovery steps.

Emergency services

The set of specialized agencies that have specific responsibilities and objectives in serving and protecting people and property in emergency situations.

Environmental degradation

The reduction of the capacity of the environment to meet social and ecological objectives and needs.

Environmental impact assessment

Process by which the environmental consequences of a proposed project or programme are evaluated, undertaken as an integral part of planning and decision making processes with a view to limiting or reducing the adverse impacts of the project or programme.

Exposure

People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.

Extensive risk

The widespread risk associated with the exposure of dispersed populations to repeated or persistent hazard conditions of low or moderate intensity, often of a highly localized nature, which can lead to debilitating cumulative disaster impacts.

Forecast

Definite statement or statistical estimate of the likely occurrence of a future event or conditions for a specific area.

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.

Greenhouse gases

Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation of thermal infrared radiation emitted by the Earth's surface, the atmosphere itself, and by clouds.

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.

Hydrometeorological 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 services, social and economic disruption, or environmental damage.

Intensive risk

The risk associated with the exposure of large concentrations of people and economic activities to intense hazard events, which can lead to potentially catastrophic disaster impacts involving high mortality and asset loss.

Land-use planning

The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups, and the subsequent formulation and promulgation of plans that describe the permitted or acceptable uses.

Mitigation

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

National platform for disaster risk reduction

A generic term for national mechanisms for coordination and policy guidance on disaster risk reduction that are multi-sectoral and inter-disciplinary in nature, with public, private and civil society participation involving all concerned entities within a country.

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.

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.

Prevention

The outright avoidance of adverse impacts of hazards and related disasters.

Prospective disaster risk management

Management activities that address and seek to avoid the development of new or increased disaster risks.

Public awareness

The extent of common knowledge about disaster risks, the factors that lead to disasters and the actions that can be taken individually and collectively to reduce exposure and vulnerability to hazards.

Recovery

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

Residual risk

The risk that remains in unmanaged form, even when effective disaster risk reduction measures are in place, and for which emergency response and recovery capacities must be maintained.

Resilience

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

Response

The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

Retrofitting

Reinforcement or upgrading of existing structures to become more resistant and resilient to the damaging effects of hazards.

Risk

The combination of the probability of an event and its negative consequences.

Risk assessment

A methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend.

Risk management

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

Risk transfer

The process of formally or informally shifting the financial consequences of particular risks from one party to another whereby a household, community, enterprise or state authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party.

Socio-natural hazard

The phenomenon of increased occurrence of certain geophysical and hydrometeorological 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.

Structural and non-structural measures

Structural measures: Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard resistance and resilience in structures or systems. Non-structural measures: Any measure not involving physical construction that uses knowledge, practice or agreement to reduce risks and impacts, in particular through policies and laws, public awareness raising, training and education.

Sustainable development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

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.

Vulnerability

The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

Populations at Risk of Disaster A Resettlement Guide

Resettlement of populations has been often associated with development projects that involve compulsory displacement of people and productive activities. However, it has also been applied as a response to natural disasters, frequently as part of reconstruction efforts. Now, some countries are resettling at-risk populations as a preventive measure.

Populations at Risk of Disaster: A Resettlement Guide consists of two parts. The first presents global disaster trends, their impacts, and strategic frameworks that have been developed for disaster risk reduction. Also, it analyzes the value of resettlement as a preventive measure—as part of comprehensive risk-management policies—and its relevance to certain types of natural hazards and their specific characteristics. The second part develops four phases for planning and implementing a resettlement program.

The *Guide* recognizes the complexity of resettlement and it is based on the premise that resettlement is not only a housing program. Applying the logical framework approach, it offers a step-by-step method for planning and implementing resettlement. It also describes how resettlement could become an opportunity to improve the living conditions of populations at risk while reducing their exposure to disasters.

This *Guide* makes available to decision-makers and practitioners knowledge and experience on resettlement as a disaster risk reduction measure and wishes to contribute to better management of disaster-induced displacement, one of the key challenges imposed by climate change.



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