Humanitarian Supply Management System
SUMA

Manual
Logistical Management of Humanitarian Supply

Panamerican Health Organization
Panamerican Sanitary Bureau •
Regional Bureau of the World Health Organization
525 Twenty-third, N.W.
Washington D.C. 20037, EUA

September 2000

TABLE OF CONTENTS

1. Disaster scenarios

The term **disaster** usually applies to a situation that disrupts the normal functioning of a system (community), seriously affecting people, infrastructure, and the environment and surpassing local response ability. This situation may be the result of a natural cause, such as a hurricane, an earthquake, or volcanic activity, or it may be manmade, such as a war—one of the most common—due to its adverse effects (for instance, the loss of lives or the destruction of infrastructure). The development of these events may be gradual and even predictable, as in the case of hurricanes, floods, landslides, etc., or may be sudden, such as with earthquakes and tornado, among others.

There are also **complex disasters**, which are a combination of different types of catastrophes in the same region or more frequently, happen in a war-torn region (for instance, the 1998 earthquake in Armenia, Colombia, or starvation in Ethiopia, Somalia, and Sudan, among others).

Usually chaos and confusion are basic to the response of people and organizations to disaster effects. This includes humanitarian aid, whose poor management may lead to what is known as a "second disaster." In this sense, there are common scenarios for different disaster events, such as:

- Timely assessment to appraise the real extent of the events and immediate assistance needs is lacking.
- When news of a disaster is known, the international community immediately responds.
- There is usually massive aid arriving from other parts of the country and abroad.
- Supply access points, such as ports, airports, and borders, are saturated rapidly.
- An adequate logistics system to control the flow of supplies is lacking.
- Storage sites and means of transportation are scarce, inaccessible, or not available.
- Time is short; victims' needs are urgent; and the pressure from public opinion is strong.
- Many products pass their expiration dates or deteriorate due to inappropriate handling and transportation; or they may not be sent to the area or are sent too late.

2. Coordinating of actions to assist people

Those who step in to help a population affected by a disaster are diverse, come from different places, answer to different authorities, and use various work methods. Although all are willing to help, lack of coordination is common in emergency situations; disputes between organizations or their reluctance to share information and work together cause delays in assisting people, duplication of efforts, and wasted resources.

To reduce these difficulties and fully exploit resources and knowledge to aid those affected, assistance tasks must be performed within a coordinated effort among the different actors that participating in these tasks.

This cooperation is maximized as organizations learn about each other, share information, identify their field of action, and seek opportunities for mutual collaboration and support.

2.1. Actors that participate in emergencies

Minor emergencies are attended by local organizations with the collaboration from one or another international organization in the country; but when there are major events, the mobilization of the international community and local sectors will mean an increase in the arrival of assistance and in the participation of individuals and organizations from diverse places. Table 1 presents a brief description of the common roles undertaken by the actors in a major event, with the purpose of showing the amount and type of contact eventually established at the operations site (see also Appendix 1: *International Organizations that Participate in Emergencies*).

2.2. Coordination mechanisms

It is important to keep in mind that countries have a local organization (Emergency Committee, Defense, or Civil Protection, etc.) responsible for coordinating all aspects related to emergencies. Usually, this is a permanent organization with its own structure and budget. Sometimes the government creates temporary institutions that, at a certain point, transfer their activities and responsibilities to various permanent governmental organizations. Whatever the case and in order to avoid duplicates efforts, it is important to coordinate support efforts with that structure.

The coordination tasks must be undertaken with an intersectoral, interinstitutional, and interdisciplinary vision and, obviously, must be started before an emergency arises. Their application and reinforcement will take place when an emergency happens. Some basic activities that comprise part of these two fundamental stages of the coordination process are:

2.2.1. During the preparedness phase

- ☑ To determine who does what in the humanitarian intervention context: which national, international, governmental, or non-profit organizations exist in the country; and what their specialty and field of action are.

- ☑ To hold frequent meetings and coordination activities with the different organizations involved.

- ☑ To devise joint plans and to negotiate pre-, during, and post- emergency collaboration agreements and commitments among the organizations.

- ☑ To set up and keep updated inventories (national, regional, institutional, as applicable) of the resources and useful contacts in emergency situations.

- ☑ To exchange information about the organizations and other sources regarding resources eventually available in case of an emergency.

2.2.2. During the response phase

- ☑ To make joint onsite assessments of the situation. This is essential as it permits multidisciplinary appraisal of the emergency and facilitates the identification of interagency collaboration areas.

- ☑ To maintain close and permanent contact among the different organization participating in the relief operations.

- ☑ To have other organizations share the results of their own evaluations and findings, which will contribute to detecting action areas that require greater coverage and to guide specific efforts.

- ☑ To share information about the activities held or to be held within the emergency framework to avoid duplication and instead try to carry out joint actions, instead.

- ☑ To promote material support and resource exchange among organizations and the implementation of the collaboration agreements.

- ☑ In emergency situations requiring a complex response level it is advisable to integrate task forces with representatives from the corresponding organizations, such as those responsible for water and sanitation, health, etc.

Table 1 Actors that participate in emergencies	
Actors	**Characteristics**
Local population	The inhabitants of the disaster area are the first to provide aid and who also assist with contributions in kind for the victims.
Neighboring communities or regions	It is common to have contributions in kind and spontaneous volunteers from regions or countries neighboring the affected area.
National or local government of the affected region or country	A major event usually brings about the intervention not only of the national authority on disasters but also of other governmental institutions.
Foreign governments	Foreign governments participate through their embassies and cooperation agencies (bilateral agencies). Their assistance, processed from government to government, may be in contributions in kind, cash, project financing, as well as sending in consultants and experts.
Multilateral agencies	In general terms, these are organizations formed by several governments and include disaster assistance among their objectives, such as the United Nations. Their collaboration is generally focused on technical assistance related to the issues dealt with by their different agencies, sending of consultants and experts on these topics, and support to look for and channel assistance resources for the affected country.
Non-governmental organizations (NGO)	These may be national or international and include religious and social organizations. The abilities, experience, and resources are usually very varied. There are international NGOs specializing in emergencies and with appropriate intervention skills and resources.
The private and commercial sector, national and international	This section may become involved at different levels ranging from donations to contracting their specialized services (transportation, storage room renting, equipment manufacturing, etc.).
Specialized institutions	These groups may provide crucial technical assistance to deal with specific issues, such as vulnerability analysis, risk mitigation, needs assessment, or other more practical issues such as water potability, medical supply management, etc.
Military organizations	Usually they have a wide supply of equipment and experience that may be used to support logistic operations. These include means of transportation, manpower, bridge and road construction, etc. However, the use of this resource must be carefully appraised whenever the army is an active participant in a conflict, as in these cases it may be unwise to use it for security reasons.

2.3. Cooperation agreements and arrangements

It may be said that organizations that intervene in emergencies have as their main objective to provide relief to the affected population and, depending on their nature and vocation, each organization has a particular work area that provides a relatively specialized service. It is also known that no single organization is capable of handling all of the problems that a disaster generates on its own.

The resources transfer modalities used during a disaster relief operation by international donors has brought about the advent of a large number of new organizations and the involvement in this field of already existing organizations, which in turn has generated a great deal of competition among them for these resources.

However, the effort must be concentrated on reaching cooperation and mutual support agreements that allow for assistance complementarity, which is timely and diverse. These agreements must be concrete and about feasible aspects so they won't create unrealistic expectations.

2.4. Requests for humanitarian aid

2.4.1. International assistance appeals

When the effects of a disaster are such that they surpass the country's available ability to respond adequately, a call for international assistance is issued. The call is made by the national government and is usually supported by the United Nations agencies and diplomatic representations abroad. Yet, this call should not be made until it is totally clear which needs may not be met with local resources, thus requiring international solidarity.

As part of emergency preparedness, the ministries of foreign affairs of some countries, although unfortunately only a few, have established action guidelines to be followed by their diplomatic representatives abroad when there is a disaster in their country of origin. The purpose of these guidelines is to have representatives able to give situation reports to the authorities, potential donors, and citizens of the country where they find themselves. Diplomats are to inform and guide them about the needs and type of assistance that would be most beneficial according to the reports of those in charge of attending to the emergency.

Ideally, this would help identify and sort offers of help, reduce useless donations being sent, and effectively channel the sending of useful assistance.

Likewise, the national affiliates of some international organizations would make their own calls to their headquarters or other affiliates in the region. Usually, these organizations have

their own established procedures to activate this kind of assistance, although they should also use the same criteria to obtain appropriate donations.

International organizations in the country or those that send delegations when there is a disaster are excellent vehicles to identify sources and to obtain and channel appropriate help. Therefore, it is important to establish procedures to keep them informed about the evolving situation at the operation site and about the needs that have been identified.

2.4.2. Instructions for donors

It is essential to guide potential donors not only as to the kind of assistance required, but also about the most effective way to have it delivered. According to the recommendation of international organizations based on their wide experience in disaster management, there are a series of supplies and aid that should not be requested from donors. The following list gives a general idea about the kind of help that should not be requested openly and massively[1]:

Clothing, shoes, and other garments: Usually these needs are met with local donations and, in any case, because of sanitary and practical reasons, these supplies ought to be supplied locally.

Pharmaceutical products: Receiving all kinds, presentations, and amounts of medicines in a variety of wrappings distracts resources—human and logistic—as they have to be classified, labeled and, frequently, discarded.

Food products: Sending all kinds of food products should not be promoted in every case. If they are needed, donors should be instructed to send properly labeled, nonperishable products adaptable to local consumption needs.

Blood and its derivates: Similarly, local blood drives usually meet needs. Besides, importing these products create more difficulties than benefits from the sanitary and logistic point of view.

Medical and paramedical personnel: National health services normally can meet the needs generated by the disaster, and if further assistance is necessary, it is always better to have them come from other regions in the country than from abroad.

Other specialized staff: National relief organizations usually have enough personnel to take charge of basic aspects of an emergency. Any need for specialized assistance should be directly requested from the corresponding organizations, but the possibility of the arrival en masse of "experts" on any subject should not be opened.

[1]Adapted from Humanitarian aid in case of disaster. Guide for providing effective assistance. Pan American Health Organization, Washington DC., 1999

Field hospitals: Their implementation is not advisable as by the time they are installed and put into service, local health services and infrastructure will probably already be in operation.

Medical equipment (new or old): Medical equipment is usually not required, and when it is, usually only very specific equipment is necessary; thus, its provision should be channeled with specialized organizations and not through a general request.

Tents: New trends in disaster management do not recommend their use. If they are needed, it is always better to try to requisition them locally. This avoids technical difficulties and import costs.

It is important to point out that in very specific cases it is possible to request some of the supplies or help listed above, but it is usually very qualified assistance which should be directly requested from specialized organizations, detailing the specificities and particularities of the help required, without being included in the general assistance request list.

The key continues to be to try to obtain from national and international cooperation only those materials and help that would be useful because they have been requested based on real appraisal of needs.

Another important aspect is the way in which the supplies are to be sent. The instructions given to donors should guide in how this is to be done:

Separated by product: Donors must be asked not to mix products of different kinds in the same package.

Classify products: In as much as possible, products sent should be pre-classified and packed according to standard categories (See section 4.2 Categories)

Label and identify products: It should be asked that packages visibly indicate their contents, ideally in the local language, or in one that is easy to translate.

Expiration dates: For those products with an expiration date, this is to be well ahead of or for no less than six months.

The sensitizing task, not only of international donors but also of local solidarity, should be done through a permanent information and education process that is part of the disaster preparedness activities. Their main objective should always be to guide solidarity to make the best use of people's generosity.

2.4.3. Following-up assistance offers

Many international organizations and governments have been sensitized regarding the topic of appropriate donations; for this reason, they do not send anything until after receiving confirmation of need, or they make assistance offers that may be useful at other moments during the emergency.

When there is this kind of offer, the donor should receive a reply immediately, and a recording and follow-up system for this kind of offers should be activated to take advantage of them at the moment when they are finally required.

This gives more time to evaluate and check the offer when it includes unusual materials or supplies, or if their usefulness is not certain. In these cases, specialized national organizations should be consulted about the matter.

This last aspect leads to a situation that is usually very delicate, and diplomacy should be exercised when declining an offer. Sometimes, consultation will reveal that some offers simply won't be useful or would complicate matters more than actually provide benefits. Receiving countries should reject, as courteously as possible, this kind of help and, instead, guide donors about appropriate assistance given the circumstances.

It must be kept in mind that every donation implies a cost for the receiver, as it requires using resources to maintain it, whether for storage space, transportation, manpower, or as is frequently the case, logistic deployment to dispose of products in bad condition or that can not be used.

3. Logistics and emergencies

Originally the term "logistics" referred to a military technique for the transportation, provisioning, and mobilization of troops. Today, it has practical applications in the civil sector. In general, it deals with a system in which the interrelation of the parts facilitates reaching an objective faster, in a more orderly fashion, and more efficiently through optimal resource utilization. This implies that the success or failure of one of the segments has repercussions on the final outcome.

Many business organizations have, under this or another name, a logistics department that coordinates, through a *logical* and sequential system, all aspects related to the purchase, transportation, maintenance, inventory, and flow of raw materials and, in general, to activities of the manufacturing and marketing processes.

In emergency operations, logistics is required to support the organization and implementation of response actions for them to be prompt, quick, and effective. The mobilization of personnel, equipment, and material necessary for the work of assistance organizations, plus the activities related to the evaluation of casualties and relocation of populations affected by the disaster, require a logistic system in order to be implemented efficiently.

3.1. Logistics planning and preparedness[2]

This section does not necessarily refer to how to plan the logistics system for emergencies, but it does attempt to provide some basic components for its elaboration as well as to stress that planning is a crucial and determining factor.

Logistics activities may be planned and they require a preparation that will be decisive in their appropriate implementation. Therefore, the erroneous idea that logistics may be improvised at the moment of a disaster depending on needs "indicated by the situation" must be eliminated, the reason being for this that both the disasters we are exposed to and the needs that arise from them are usually predictable.

In fact, logistics must be an active component of any country's National Emergency Plan as well as of the plans of particular organizations that intervene in disasters. Logistics should be related to other operational activities in the response context.

[2] This section is fully detailed in the document *Logistics*, Disaster Management Training Program. Module prepared by R. S. Stephenson, Ph.D. UNDP-DHA. 1st Edition 1993.

3.1.1. The plan

Planning and precaution are vital to establish an adequate logistics system. This planning should be based on good knowledge of the geographic, social, political, and physical context in which the operations are to be implemented. Building this system also requires an effective implementation and operational plan, one that has to be understood by all involved in its application.

This plan should respond to the following questions with clear, detailed answers:

- ☑ Which tasks are to be performed? How do they relate to other activities, and what is the sequence for their implementation?
- ☑ Who are responsible for these tasks? (Rather than just individuals, sections or departments should be identified).
- ☑ Who will be in charge of the global coordination of the logistics system?
- ☑ Which resources will be necessary? How and where will they be acquired?
- ☑ Which alternative actions will be implemented in case the defined system breaks down?

3.1.2. The preparations

This implies a list of preparation activities that require an important investment of effort but that will contribute greatly to improve the knowledge of the possible areas of operation, to identify weaknesses, potential needs, and possible solutions and alternatives. These activities, which are described below, may be performed regionally, depending on the size of the country, beginning with those considered high-risk areas. Otherwise, organizations may prioritize their geographic intervention areas.

These activities, in turn, are directly related to the vulnerability and resource assessment that must be done for the elaboration of a national or regional emergency plan. We insist on the fact that logistics must be a component of such a plan.

a. Infrastructure vulnerability assessment

This aims at identifying the strengths and weaknesses of the country's or region's real estate properties and resources under study as well as at forecasting alternative actions in case the available infrastructure collapses. Some tasks to be developed are:

- ☑ Systematic mapping and revision of key elements of the national transportation infrastructure (shipping ports, airports, roads, railroads, navigation facilities), such as capacities and difficulties of strategic routes, possible bottleneck points (bridges, ferries); communication resources availability; risks and blockage due to the event's impact.

  It is vital to determine the vulnerability of ports and airports to hazards. This may include, for instance, hangar, storeroom, and refueling equipment exposure to the effects of a cyclone, or the impact of an earthquake on key systems.

- ☑ Analysis of annual climate records to determine weather impact on the transportation system capacity in different seasons.

- ☑ Regular monitoring of large modifications or constructions that may cause temporary blockages or detours. For example, a bridge's weight and width restrictions, closing of a road due to reparations, etc.

b. Determining the availability of strategic resources for logistic support

These resources are changeable, thus a periodic and frequent review is required to keep information on them as up to date as possible. This review should include the private sector, the public sector (governmental institutions resources), and the non-governmental sector (both national and international organizations):

- ☑ Do a nationwide inventory of the sources and location of different kinds of supplies that could be needed during an emergency, including medical equipment, food products, blankets, fuel, and rescue equipment. The analysis should include delivery time for the supply of critical resources.

- ☑ Analyze the means of transportation to mobilize people and supplies: a detailed review of transportation capability, such as fleet size, type and capacity, location, rates, availability, etc.

- ☑ Examine sites for the operation of logistic bases, collection centers, and refueling points, including public and private facilities, large storage complexes, factories, and other facilities that could be adapted.

- ☑ List availability of spare parts and access to both public and private repair shops.

- ☑ Check port and airport capacity to handle emergency supplies under different scenarios.

- ☑ Assess other transportation options: determine routes and alternate options that may be used in case of emergency.

c. Revision of governmental policies, plans, and preparedness

For NGO it is very important to know what the State's policies and plans are regarding emergencies. The Government, being through its disaster office, the main responsible entity for relief actions, it is essential for organizations to be part of such activities and coordinate with these organizations. Likewise, contact should be taken advantage of to reach the previous agreements or mutual collaboration and facilitation of our organization's activities in times of emergency, such as tax exemptions for humanitarian supplies, priority treatment at customs, etc.

All the data gathered and the activities performed in this planning and logistic preparedness phase should be the basis for devising a plan that describes the procedures, responsible parties, and time needed for their execution.

3.2. The logistic chain of emergency supplies

In this manual we focus on what we call the *logistic chain of emergency* supplies, whose main task is to "deliver appropriate supplies in good condition and in the amounts requested, to the places and at the moment they are required."[3]. The components of this logistic chain, although not necessarily in sequence as they frequently develop simultaneously, should be taken as a whole and not as separate activities, due to their interlinked relationship.

While there should be a general coordinator to act as a link between the segments, it is not expected that only one person will control the whole process. Thus, each of these tasks will have a responsible party in charge of its coordination. The parts of the logistic chain are:

3.2.1. Procurement

This consists of making the resources identified as necessary and requested for the attention to the detected needs available to the organizations in charge of assistance, which also requires the identification of the sources and means of acquisition.

3.2.2. Transportation

This is the means by which supplies are taken to the site where they are needed and whose strategy should take into account not only the required means but also the real possibilities and the alternatives for timely and safe delivery of the assistance.

[3] *Logistics*, Disaster Management Training Program. Module prepared by R. S. Stephenson, Ph.D. UNDP-DHA. 1st Edition 1993.

3.2.3. Warehousing

This makes it possible to protect the supplies with a well-organized system until they may be delivered to their final destination, and to predict reserve supply needs for the future.

3.2.4. Distribution

This is the main objective of any logistic chain. It consists of getting assistance to the people affected by the disaster, or to the organizations in charge of handling them, to ensure a balanced, fair, and controlled delivery that avoids abuse and waste.

It is crucial to keep in mind that these components are closely related, like links in a chain that depend on each other, and that the rupture or poor functioning of any one of them will affect the performance of the others. For instance, if the transportation of a load of supplies is organized satisfactorily but upon arrival to the delivery site, there is no storage space, or if the necessary resources are available to meet needs at the emergency site, but there is no transportation available or it is of the wrong kind, the effort made in this chain will be useless due to lack of synchronization with the following phase.

4. Characteristics of supplies

4.1. Emergency supplies

We will consider humanitarian or emergency supplies to be those products, materials, and equipment used by organizations to respond to a disaster, as well as those required to assist the affected population. These supplies are varied and range from products and materials for the population's use and consumption, such as medicines, food products, household goods, clothing, etc., to those required by organizations providing assistance, such as electricity generators, rescue equipment, construction materials, tools, etc.

As mentioned earlier, these supplies come from diverse sources: some are vitally important while many others are useless or inappropriate and become an additional burden for those responsible for handling them.

Some are purchased or channeled by the organizations themselves in response to needs that are identified onsite, but most are the product of spontaneous solidarity of the national and international community. Thus, depending on their origin, supplies may be of either one of two types:

- Those requested or purchased by organizations according to intervention type and needs. These, whether they are relevant or not, are usually handled by the same institutions that request them, and which know their content and assign them a specific destination, or

- Those generated by either national or international donors, or that do not necessarily correspond to local needs. Usually these supplies do not have a specific destination and their handling is left up to national authorities in charge of the emergency that have to start by identifying the type of product, its characteristics and conditions, and finally, if they are usable, determine their use and destination and coordinate their delivery.

4.2. Categories

Based on the experience of many humanitarian organizations throughout diverse emergencies worldwide, which supplies are most commonly used in these situations has been determined and international regulations have been adopted which group them into 10 categories, depending on their type and function.

The supply categories are the following:

1. Medicines
2. Water and environmental sanitation
3. Health[4]
4. Food and beverages
5. Shelter/Housing/Electricity/Construction
6. Logistics/Administration
7. Personal needs/education
8. Human resources[5]
9. Agriculture/Cattle
10. Non classified

The *non-classified* category includes supplies that are expired, unidentified, useless, in poor condition, or highly mixed in order to be able to classify them during the critical phase of the emergency.

Each category is divided into subcategories, and these supply subcategories have items or articles for reference, for instance:

Category: Water and environmental sanitation
Subcategory: Water treatment

Item or article: Calcium Hypochlorite

This type of identification is especially useful for classifying and registering supplies. The SUMA system uses this classification for the handling of data on supplies that have been entered in their registration tables.

4.3. Hazardous materials

Hazardous materials, although useful for human activities, are those whose chemical composition poses risks for people and their surroundings.

These materials, such as fuel, chloride products, domestic gas, oxygen, lab reactives, etc. that are routinely used and that are also required during an emergency, must be handled carefully to avoid explosions, poisoning, contamination, and serious injuries onto people.

There is an international regulation that establishes compulsory standards and guidelines for the identification of these products by means of labels according to their nature and possible effects, transportation, and the care that has to be taken during their handling and storage.

[4] The Medicine category only includes pharmaceutical products, while the Health category refers to non-pharmaceutical products used in health activities, such as surgery instruments, lab materials, X rays, etc.

[5] Although Human Resources are not supplies as such, it has been considered useful to use a category to classify the specialization of volunteers and support staff coming from abroad to provide assistance during the emergency.

It is vital for those participating in a supply mobilization operation to have access to these guidelines, which also describe the composition of the products, their incompatibilities, and procedures in case of accidents with these substances. In this way, participants will have criteria to proceed appropriately while handling dangerous materials.

Dangerous materials are classified according to the chemical reaction characteristic (explosives, corrosives, flammable, etc.) and within this classification, according to other characteristics of the substances. For specific details, we recommend checking the guide of the Canadian Transportation Emergency Center (CANUTEC), that provides extensive information not only about the products, their classification, and identification, but also about their effects and preventive and first aid measures in case of an accident with these substances. To access this guide and navigate different sites related to the topic, you may visit the following Internet address:

http://www.tc.gc.ca/canutec/spanish/guide/toc/toc_s.htm

4.4. Specialized materials

Very frequently equipment and material are required that won't necessarily come from individual donations. Institutions must purchase them or request them from international organizations which have them, or that know where and how to acquire them.

Some of these organizations, such as OXFAM, Doctors Without Borders, WHO, and OFDA, among others, have created several kits which bundle a group of materials and equipment of the same kind or that may be used for the same activity, such as water treatment, storage, and distribution kits, kits for shelter construction, electricity and lighting generation kits, a cholera kit, medicine and essential medical equipment kits, etc.

These kits are either donated or made available by these organizations for relief operations. The contents and characteristics of existing kits are described in these organizations' catalogues.

Specialized equipment commonly means highly priced material; therefore, it is essential to be sure about what is really needed before requesting it. It is also important to know the specific characteristics of what is requested, so that the donor or supplier gets correct information and responds accordingly.

5. Assessment of Logistic and supply needs

5.1. The importance of assessment

The assessment of Logistic and supply needs serves to ascertain, as accurately as possible, the population's needs as a consequence of a disaster, as well as the available local capacity and complementary requirements to meet those needs.

This assessment should be an integral part of the overall assessment process carried out at the disaster site to determine the type and extent of the damages and the areas that most urgently need intervention.

The quality of this assessment is very important, as supply requests will be made based on the situation that has been identified at the operation site.

However, it should be stressed that the assessment should not become a liming activity. Although it is the instrument that makes it possible to confirm which sectors have been affected, and to determine the most specific quantitative and qualitative aspects about what assistance is required, this should not mean that the assessment process must be completed before starting the most urgent assistance tasks.

From the supplies point of view, the assessment should contain features that determine the following aspects:

Assessment of Needs:
a. Population's needs
b. Operation needs

Assessment of Capacities:
a. Local infrastructure capacity
b. Local availability of resources

Restrictive or facilitating measures

5.2. Assessment of Needs

It is important to determine not only the needs of the affected population, but also the needs of the organizations that perform the relief tasks.

Some of the basic questions that this assessment should set out to answer are:

- ☑ What is needed?
- ☑ How much is needed?
- ☑ When is it needed? (urgent, not urgent)
- ☑ Where is it needed?

A disaster scenario is usually a dynamic and changing situation, thus this assessment must help not only to identify the current situation, but also to anticipate future needs.

5.2.1. Population's needs

It is important not to stereotype disasters, as the needs they create depend not only on the type of event but also on the socioeconomic characteristics and other specific aspects of the affected region or country. Yet, experience has shown which sectors of the population's life are affected by different kinds of disasters most frequently, and what the potential basic survival needs are.

The following are the most frequently affected sectors:

Health: Most events impact to a greater or lesser degree on the population's health and create additional or urgent needs in this sector.

Water: It is very common for drinking water systems to undergo damage, or that, given the circumstances, for access to them to become limited.

Food: Not all events cause general food shortage, but people who have lost their homes or belongings will probably require some temporary help in this regard.

Shelter: The impact on shelter may force people to look for temporary lodging until their housing problems are solved.

Sanitation: The often sudden interruption of a community's normal functioning, their displacement or grouping in places other than their home, etc., may adversely impact environmental conditions and endanger their health.

Thus, taking into consideration the kind of disaster being faced, we may preliminarily ascertain which type of assistance will most likely be necessary and start onsite response activities while assessments continue and reveal more specific aspects requiring attention.

5.2.2. Operation needs

Very often local organizations that intervene in emergencies do not have enough resources to face the demands of the disaster. Therefore, it is important to determine the resources they can count on (and those they lack) and what their needs are to adequately perform their role in the emergency context. If there is a planning and logistics preparedness process, determining what resources are available and what are lacking will be simplified.

5. 3. Assessment of the local capacities

By local capacity we understand not only the available resources in the operations area, but also those local aspects that may facilitate or complicate supply management.

5.3.1. Capacity of the local infrastructure

Knowing that disasters usually affect vital lines—among them communication lines—and, in general, infrastructure, it is important to evaluate rapidly the availability and functioning of facilities and means for receiving and mobilization of supplies.

Regarding infrastructure, the following factors should be evaluated:

- ☑ Situation of roads and means to deliver supplies to the affected country or region. Is there a limitation regarding their use? Are changes or possible deterioration foreseen?
- ☑ Existence and availability of supply storage sites
- ☑ Existence and availability of means of transportation
- ☑ Condition and capacity of supply entrance points (airports, ports, borders…) Is there any limitation that affects their use? Are changes or possible deterioration foreseen?

5.3.2. Local availability of resources

It is frequently possible to find many supplies previously identified as necessary either locally or in areas surrounding the emergency site. Therefore, the assessment should include the recognition of the existence of such materials. This means not only products available in businesses, but also those public and private resources that may eventually be used during field operations. Likewise, this includes providing organizations with the necessary resources for the assistance of the affected population.

5.4. Restrictive or facilitative measures

In case of complex disasters or those in specific political contexts, it is common for national authorities to decide to apply restrictive measures for the operations or for humanitarian aid. An example of this is when foreign organizations are denied permission to enter the country, or when regulations dealing with mobilization to the affected areas are restrictive.

In other cases, it is possible that a restriction against the import of certain products or materials is in effect due to religious, political, or sanitation reasons.

At the other extreme, some governments may adopt exceptional measures to facilitate an organization's relief tasks, such as more flexible procedures to allow the entrance of humanitarian assistance to the country or the operations areas (priority treatment at customs, tax reductions or exemptions, availability of governmental institutions, etc.).

The assessment should mention the existence of any restrictive measures that could have repercussions on the mobilization of task forces and on the kinds of supplies that may or may not be used. Similarly, it is important to know the facilitation measures that may eventually be taken advantage of.

5.5. Other relevant aspects

Similarly, any other information related to aspects that may affect in one way or another the management of supplies must be compiled; for instance, if a climatic change exists or is foreseen, if there are events associated to the one that created the emergency, and if there are any other security-related aspects that have to be considered in the supply mobilization or positioning strategy.

5.6. Population's socio-environmental and cultural aspects

To provide more adequate and appropriate assistance for the population, it is extremely important to identify their social and cultural habits and the environmental characteristics of the area they live in.

This information will have to be taken into account for decision-making about the kind of supplies that must and can be distributed, related both to use (clothing, housing type, appliances, etc.) and consumption (kind of food, water and beverages consumed, etc.). Some basic activities to identify them are:

- ☑ Identify the population's eating habits, including type of food they do or do not eat (for reasons related to religion, culture, and custom), the appliances used for food preparation, and any other relevant information that may help to determine the best kind of assistance to be provided to them and the type of assistance to avoid.

- ☑ Prioritize the identification of local and regional products before requesting assistance for food or trying to get it from other regions.

- ☑ Note type of clothing worn and not worn (cultural or environmental reasons).

- ☑ Note type of housing and most common building materials (environmental or cultural reasons, if any).

- ☑ Get information about the needs and type of assistance identified as a priority by the community itself.

- ☑ Identify the existence of ethnic or cultural minorities and their particular needs in order to avoid excluding them.

Once again, an appropriate assessment will guide decisions to better provide relevant and adequate attention. Determining needs regarding supplies should be an integral part of the overall emergency evaluation.

6. Procurement

6.1. Sources for and ways to procure supplies

Supplies used to attend to an emergency come from different sources: they are purchased directly by organizations, donated by the national or international community, or loaned by collaborators. Usually, during a disaster relief operation, these modalities are combined. Each has advantages and disadvantages, and it is not always possible to choose the most appropriate for the circumstances. However, whenever possible, the selection of a particular modality should be made based on technical criteria.

6.1.1. Purchases

Purchasing may be done locally or externally. Certain aspects that should be considered when choosing between these two modalities are:

Local purchase: Choosing this option depends on factors such as local whether the required products are available or not, the quality and quantity of the products available locally, and the urgency with which such products are needed in comparison to the time it takes to bring them from abroad. Whatever the case, the cost-quality relationship should always be assessed; therefore, it is important to count with some technical assistance on this matter.

Bulk purchases of a specific product may eventually have a negative effect on the local market and the population's access to this product. On the other hand, local purchasing favors the economic recovery of the affected region.

As it is usually common to have storage problems, sometimes it may be wise to negotiate with the local seller to keep the product in its own facilities and have it dispatched upon request.

External purchase (made abroad or in another region of the country): Frequently, local availability of specific products is a problem, or the quality/quantity of the products locally available is not good enough to effectively meet needs. In these cases, external purchases are an option.

6.1.2. Donations

Donations comprise the majority of the supplies handled during an emergency. When they include items that have not been requested, are not a priority, or are inappropriate for the emergency situation, they become a logistics complication.

However, donations are still very important because, when they are useful, they may provide a great service and relief, not only for the population affected, but also for the organization operation costs. Besides, they encourage and strengthen solidarity.

6.1.3. Loans

People, organizations, or private businesses contribute by providing free services or equipment and material loans during a specific phase of the emergency relief operation. Although many offers and donations will be made spontaneously during the emergency relief operations, it is also important to identify them and to reach agreements ahead of time during the planning phase. To illustrate, Table 2 outlines some of the advantages and disadvantages of the different means used to get supplies.

6.2. Requisitions

The clearer and more concrete orders are, the faster and more accurately they will be filled. Misunderstandings may arise from any source when ordering supplies, especially about technical aspects.

- ☑ Order forms: standard forms should be used to place orders. They should be numbered, dated, and in duplicate for easy follow-up and to keep track of confirmations (see Appendix 2 Order Form Model).

- ☑ Responsible: only one person, properly designated, will be in charge of making the orders.

- ☑ Clarity: Supply orders should be very clear and include all pertinent data and details. The use of catalogues and any other drawing, including pictures, is always advisable to clearly illustrate the part or item required. It is recommendable to have technical assistance when ordering supplies, especially when dealing with unfamiliar items.

- ☑ Priority**:** each order should clearly state its level of priority based on the detected needs, distribution volume, and stock.

- ☑ Order frequency: this depends on detected needs for each item, distribution volume, and stock. However, it is important not to wait until the last minute to place a new order. The time that a new delivery will take to arrive should always be taken into account.

- ☑ Medicines and dangerous materials: it is necessary to know the rules, regulations, and authorization procedures about the importation and handling of these products.

- ☑ Order follow-up: when inquiring about an order in process, state its number and date.

TABLE 2 PROS AND CONS OF DIFFERENT ACQUISITION TYPES

Acquisition	Advantages	Disadvantages
LOCAL PURCHASES	▪ Fast delivery ▪ Lower transportation costs ▪ Support local economy	▪ Required quantity and quality not always available ▪ May create competition among organizations for the purchase of a product ▪ May cause a scarcity of provisions in the local market
IMPORTS	▪ Better quality and larger quantity may be obtained ▪ Specialized items may be ordered	▪ Increased delivery time ▪ Increased freight costs
DONATIONS	▪ Free or inexpensive (note, however that every donation has a cost…) ▪ Encourage national and international solidarity ▪ Usually arrive quickly	▪ Frequently arrive without being requested ▪ May not include what is necessary ▪ Cause wasted time and resources when useless ▪ Difficult to reject although useless
LOANS	▪ May be of difficult to purchase equipment or materials ▪ Reduce operation costs	▪ May depend on the time the loaned equipment or material is available ▪ Involve responsibility for their care and maintenance ▪ Make it difficult to demand responsibility, quality, or compliance

6.3. SHIPPING SUPPLIES

One way to ease the task and avoid additional complications for those who receive the supplies onsite is to prepare the packages and their shipment properly by using a standardized system.

To effectively implement the concept of assistance, sending unrequested supplies, which is frequent, should be avoided. In these cases, it is better to check with those in charge onsite if the item is needed or to suggest it to them in case they had not thought of already.

Some basic measures will make a big difference in the mobilization and receiving of supplies. The following section details some of these measures.

6.4. Shipment preparation

6.4.1. Shipment packaging and identification

☑ Ideally, supplies should be sent already sorted and classified. For no reason should different kinds of products—for instance, clothing with medicines or food, etc.--be mixed in the same package. Moreover, whenever possible, each item should be packed separately; in other words, in a shipment of clothing, for instance, garments should be sorted according to gender, size, material, etc.

☑ To facilitate content identification, packages should be marked using the symbol and color system that many international organizations use for different categories and items (see Appendix 3 *Some Symbols for the Identification of Supplies*). For example:

- → **green** for medicines and medical equipment
- → **red** for food items
- → **blue** for clothing and household items
- → **yellow** for equipment and tools, etc.

☑ Never send products whose quality or condition is doubtful. The shipment of products whose expiration dates are close should also be avoided, except when they are going to be used or distributed immediately.

☑ Each package should be clearly labeled with the following information:

- → contents (general)
- → destination
- → consignees' name, address, and phone number
- → sender's name, address, and phone number
- → special features or warning about care that the package requires (weight, fragile, keep refrigerated, hazardous material, etc.)

☑ The labeling should be done with indelible ink or with labels that do not easily detach.

☑ Packages belonging to the same lot should be numbered with a specific digit related to the total number of packages; for instance, in a shipment containing 100 packages, they should be numbered 1/100, 2/100, 3/100, and 4/100 and so on until 100/100. This makes it easier to verify and follow-up the number of packages at the receiving points.

- ☑ When packaging a shipment, it is important to keep in mind the time in transit and handling that they will undergo. Therefore, the sturdiness of the packaging material is crucial.

- ☑ Moreover, depending on the type of transportation (for example, by air) the "added weight", that is, the weight of the packaging material should be kept to a minimum.

- ☑ One of the packages should contain a copy of the packing list with labeling to identify it. The list may be attached to the outside of the package in a plastic envelope to protect it.

6.4.2. Package volume, weight, and size

Usually, onsite receiving points do not have equipment for loading and unloading shipments, so this has to be done manually. Thus, an effort should be made to prepare packages that make these tasks easy. In principle, a package's weight, size, and shape should be such that one person can handle them.

- ☑ Weight: ideally, packages should weigh between 25 and 50 kilos.

- ☑ Volume: package size should allow for manual handling. Packages may not be overly heavy, but so big that it is difficult to carry them.

- ☑ Shape: packages should have symmetrical shapes whenever possible to make it easier for a people to grasp and carry them. Round or oddly shaped packages should be avoided.

6.5. Shipping procedures

6.5.1. Shipment notice

Those in charge of receiving shipments should make all the necessary arrangements beforehand; this means looking for a storage place, arranging for transportation when items must be transferred, having staff available to handle the shipment, etc. Therefore, the carrier must provide well ahead of time all possible information regarding the nature of the shipment and its transportation and routing. Some aspects that should be notified to the consignee are detailed in Table 3.

Table 3 Shipping notice	
About the shipment	Type of items Quantity (number of packages) Weight and volume Special care required (for instance, refrigeration) Order number (if any)
About the means of transportation	Type and characteristics of the means of transportation and routing Carrier (if applicable) Person in charge of the transportation
About the schedule	Estimated departure time and expected route Estimated time of arrival. The consignee should be advised of every change in the schedule. Exact place of arrival (in an operation area there may be several receiving sites)
	Any other information considered relevant to facilitate the receiving arrangements.

6.5.2. Shipping documents

a. National or local shipments

Usually these shipments require less documentation than international ones. They must be accompanied by a *cargo list* or *shipping guide*, describing the shipment and providing any other information about the supplies being sent (see Appendix 4 *Shipping Guide Model*), as well as the *packing list* mentioned earlier.

b. International shipments

In these cases, the shipment must be accompanied by a *bill of lading or waybill* and its corresponding *cargo list* or *shipping guide* prepared by the carrier. It is important to mention that the carrier's shipping guide printed in its stationery is for its own use and for customs procedures; therefore, it is useful to also include our own shipping guide and a packing list describing the shipment package by package to be used for internal control purposes in our organization (see Appendix 4).

6.6. Control and monitoring of the supply transportation procedure

Transportation operations, as with all segments of the logistics chain, require control and monitoring procedures to help track supplies from the moment they are dispatched to their reception at their final destination. These controls will be used, among other things, to:

a. Know the route taken by the supplies and identify where a shipment that didn't arrive at its destination, for instance, might have been left behind.

b. Identify all the people who have had anything to do with the shipment from its dispatch site to its final destination.

c. Have control documents about the shipment and supply receiving.

In the case of shipments, this role is taken up by the *Shipping Guide,* which must be printed on standard forms to compile at least the following information:

- ☑ Consecutive numbering
- ☑ Shipping date
- ☑ Place of dispatch
- ☑ Means of transportation
- ☑ Name and signature of the responsible parties: dispatcher, carrier, receiver
- ☑ Description
- ☑ Space for observations

These forms should also have the following features:

- ☑ Be printed as a receipt book with stubs
- ☑ Be numbered consecutively
- ☑ Provide a copy for each party involved in the process (dispatcher, carrier, receiver)

6.7. Cargo insurance

When an authorized carrier sends a shipment, ideally the insurance should be part of the freight contract. Otherwise, information about the different kinds of insurance and their coverage has to be researched. Obviously, we should not wait until the middle of an emergency operation to look for this information. On the contrary, looking for this information should be part of the activities required during the emergency logistic planning phase.

7. Reception of Supplies

7.1. Arrival of Supplies

Supplies and donations arrive from different places and by different means. Thus, their entrance points and receiving are also very diverse.

7.1.1. Entry points of assistance

In general, donations or supplies, either from abroad or from other regions within the country, will arrive in sea or river ports, airports, or the terrestrial borders. These are transit places for supplies before their consignees pick them up. Since most donations do not have a consignee, usually national authorities are in charge of handling them.

Ideally, the arriving supplies should be registered, using the Shipping Guides, Bills of Lading, or any other document accompanying and describing the shipment. This record may be made using the SUMA system, or any other method. The most important thing is to establish a record of donation arrivals from the beginning.

As mentioned earlier, upon a massive arrival of shipments, the operation capacity of these entrance points soon reaches its limit and managing them may become chaotic.

7.1.2. Reception sites

These are the collection or receiving sites set up by organizations and private and public sectors to receive donations. They may also function as transit, preparation, and packaging places for shipments. In some cases the organizations' storage rooms inside or outside the affected region are used for these purposes.

7.2. Receiving international shipments

7.2.1. Customs procedure and shipping documents:

We stress the importance of preparing logistic activities during the emergency contingency phase, as there are critical aspects that must be coordinated ahead of time for which there should be preliminary agreements with the corresponding authorities.

This is the case of customs procedures for the entrance of humanitarian assistance in case of disaster. In the contingency phase, the corresponding authorities should be contacted so as to determine the procedures that must be followed and try to obtain special conditions or arrangements, such as tax exemptions, priority processing of customs duties for humanitarian supplies, etc.

These agreements should be backed up by signed documents to avoid renegotiating conditions every time there is a relief or a change of authority.

It is also important to take into account that during an emergency, access to authorities may be more complicated and that there will also be many organizations and people trying to expedite clearance of their own shipments.

Some countries have signed an international agreement promoted by the United Nations approving a series of measures to ease the movement (exit and entry) of humanitarian supplies in case of disaster. There are also some groups of countries with multilateral agreements (for instance, Central American and Mercosur) that have included sections related with the preferential treatment of such supplies in their customs regulations. It is important, then, to be informed of the local applicability of these measures.

When shipments are received from abroad, the best procedure is to hire a customs agency to take charge of customs paperwork. However, this is not always possible, depending on the country and the circumstances, so it is crucial to ensure that all international shipments be accompanied by at least the following documents necessary to clear them from customs:

- ☑ *Bill of Lading* or *Waybill*: this is the transportation contract and the verification that the cargo has been delivered on board. This document also describes the shipment in terms of number of packages, volume, weight, and other pertinent information about the cargo. *Waybill* is the term used for land and air shipping. *Bill of Lading* is used to refer to sea freight.

- ☑ *List of cargo*: this document specifies the kind of items with their origin and destination to inform customs authorities and be used in the country of destination.

- ☑ *Packing list*: ideally, the shipment will be accompanied by this non-compulsory list, which identifies the cargo content package by package. This applies more in cases in which the supplier is the overseas headquarters of an organization (for examples CARITAS of Argentina sending a shipment to CARITAS of Guatemala; MSF Logistics sending a shipment to one of its missions, etc.).

Usually, the shipper sends these documents once the cargo has been delivered to the carrier that will transport it. Otherwise, they should be requested in order to process them as soon as possible.

Other documents that may accompany the cargo, depending on specific situations, are:

- ☑ Donation certificate: this verifies that the cargo being received is a non-profit donation. This is important for tax exemption purposes at the destination country.

- ☑ Phyto-sanitary certificate: the sender uses this document when the cargo contains any kind of food products to certify that they have been checked and are approved for human consumption. In many countries, customs and health authorities do not authorize unloading these products if they have not been certified. It is very important to remember that the certificate itself is not an absolute guarantee of the condition state of the products upon their arrival in the receiving country. Depending on the kind of products, very often, they may arrive spoiled due to delays in transit or storage problems.

- ☑ Hazardous materials declaration: this document is attached when the cargo contains some dangerous chemical product or when special handling and verification are required; for instance, pesticides, laboratory reactives, products for water potableness, etc.

7.2.2. International commercial terms (Incoterms)

International purchase, sale, and transportation of goods are regulated by the International Commercial Terms, known as Incoterms. They are used to determine the conditions under which the transaction is made and to identify responsibilities and commitment both on the part of the seller and the buyer regarding merchandise costs and risks, place of delivery, etc. Therefore, when products are purchased, especially abroad, it is very important to know exactly which Incoterm is applicable to the transaction. The first publication of Incoterms dates from 1936; it has been amended and revised several times. The last revision was done in 2000 in order to adapt the terms to the new trends in international commerce. There are 13 terms; the most common are the following:

CIF: this is the price the buyer pays to cover the merchandise ***C****ost* itself, ***I****nsurance* for the products, and product ***F****reight* or transportation to its final destination. This term is used only for sea and river transportation.

The equivalent term for other means of transportation—by air, land, or a combination (multimode) is **CIP,** which means "***C****arriage* and ***I****nsurance* ***P****aid to…."*

By means of **CIF** and **CIP**, the seller commits itself to:

- Deliver the cargo at the port agreed on with the buyer as listed in the documents and to procure and pay for its transportation.

- Pay for the insurance covering the merchandise from its facilities to the moment of loading the merchandise; in other words, the carrier's departure point.

- Process customs export paperwork for the cargo from the country of origin to its final destination.

The buyer will be in charge of:

- Loss or deterioration risks or other expenses resulting after delivering the cargo to the carrier.

- Import customs paperwork; in other words, the paperwork needed for the cargo to enter the destination country, its clearance, and handling upon arrival.

With **FOB,** the seller's responsibility will be to:

- Put the products on board the carrier indicated by the buyer (***F**ree **O**n **B**oard*).

- Process export customs paperwork for the cargo from the country of origin to its final destination.

The buyer will be in charge of:

- Hiring a carrier and paying for the cargo insurance up to its final destination.

- Import customs paperwork for the cargo to enter the destination country, as well as its clearance and handling upon arrival.

The **FOB** term is used only for sea and river transportation. The equivalent term for other types of transportation—air, land, or a combination of them (multimode)—is **FCA**, which means "***F**ree **Ca**rrier*".

With **ExW,** the price covers only the cost of the product placed at the seller's facilities (**E**x **W**orks). The seller is only responsible for selling the product.

The buyer will be in charge of finding and paying for the cargo freight and insurance, the customs paperwork in the country of origin and in the country of destination, and cargo clearance and handling upon arrival at its destination.

The type of Incoterm used is written on the Bill of Lading. The point of delivery agreed on according to the term being used must always be stated as well.

For instance: **CIF** to Puerto Caldera, **CIP** to JM Córdova International Airport, Medellín, **FOB** to Puerto Armuellez, etc.

ExW specifies the factory or facility where the merchandise has to be picked up in the case that the company has several facilities in different countries or cities.

Appendix 5 presents a table that details each type of Incoterm and its characteristics.

7.3. Receiving local freight

This is usually less complicated than international freight, as it does not require all of the paperwork mentioned earlier. Yet, it needs an adequate preparation for its reception. This usually consists of a shipment being sent to the site to be stored or distributed. It may arrive by a commercial company or by the different organizations' transportation fleet.

7.3.1. Unloading supplies

Usually, there is no hydraulic equipment at the operation site to handle the cargo, so strength and ingenuity have to be used to do so. It is important to know the type of vehicle and the characteristics of the cargo to be received in order to plan its reception adequately.

- ☑ Assign a team of people to unload supplies and locate a convenient site for vehicles to park as close as possible to the unloading area. To do so, take advantage of the site's topography; for instance, move the vehicle close to a slope, or create mounds to reduce the height between the ground and the vehicle's platform. Improvise ramps as necessary.

- ☑ Sometimes tires without the metal rim may be used as a buffer to prevent damage to packages dropped on them when the package weight makes it impossible to unload them manually.

- ☑ Every safety precaution must be observed to safeguard people and supplies. Regardless of how urgent the cargo is, time must be taken to handle it carefully.

- ☑ A person should be appointed to supervise and control the unloading operation to avoid inadequate handling of the packages and to count and to check them.

7.3.2. Cargo verification

The freight content must be verified at the moment it is received and unloaded. If this is postponed, it may never be done or it may be done too late to identify and solve problems and pinpoint the responsible party. This verification should include as a minimum:

- ☑ Counting packages and verifying their weight: their number has to correspond to what is indicated on the documents accompanying the cargo.

- ☑ Content matching: content must match what was ordered when the shipment was requested. Otherwise, it should match what the shipping guide indicates.

- ☑ General condition of cargo: package and item condition. Look for leaks, torn packages and, in general, any item in bad condition.

- ☑ Missing items: if packages show signs of having been opened, they should be checked for missing items.

7.3.3. Acknowledgement of receipt

Regardless of whether the freight is local or international, the receiver should acknowledge its receipt as soon as possible. Later, after verifying it, a report has to be sent to the shipper indicating the condition and contents of the cargo.

7.3.4. Supply receiving control

The role of the documents that accompany the cargo is to facilitate its management and control. It is always necessary to cross-reference the "paperwork verification", that is, what the papers say, and the "physical verification" or the visual check of the supplies received. The shipping guide of the organization sending the supplies should be the official document used to check its receipt.

The sender should be notified of any discrepancy or problem as soon as possible, and these should be recorded on the observation space on the guide (see Appendix 4). The receiver should keep one copy of the guide; the driver should keep another as a delivery receipt; and the third copy should be returned to the sender.

8. Checking in, Inspecting, and monitoring Supplies

8.1. Supply Entry and checking in

8.1.1. Procedures at entrance and receiving sites

This is usually a crucial task as it is basically the first contact with incoming donations. Performance in this phase will greatly impact the rest of the system. As previously mentioned, supplies must be registered as soon as possible at the entrance and receiving sites by means of a standardized system that offers follow-up and control tools. This will require having available an onsite task force to handle the different tasks, as well as a coordinator to guide the job and deal with inquiries about the selection, priority and, in general, the treatment of donations according to their categories and other criteria that may have been established.

We recommend using the SUMA methodology, a well-developed tool that has yielded positive results in innumerable emergencies.

The most important procedures for recording donations at entrance sites are:

- ☑ Recording: incoming supplies should be registered under the unitary concept of shipment, that is, "the set of supplies that arrive **at the same time**, by the **same means of** transportation, from the **same** donor, and addressed to **the same addressee".**[6]

- ☑ Based on the documentation accompanying the cargo, a record of each of the arriving shipments should be established. In general, supply entrance sites do not have adequate conditions (room, availability) to check the shipment in detail. Or the shipment may be addressed to an addressee that may take it to its own storage room. Thus, to keep a proper record of the incoming supplies, the largest number of specific details about the shipment should be obtained. These may include:

  - → Origin
  - → Addressee
  - → Means of transportation
  - → Number of packages
  - → Weight (if possible, indicate the weight of each package individually, for instance, 1.000 K, Food, 1 K Medicine supplies, etc.)
  - → Contents and package shape
  - → Condition upon arrival

[6] SUMA. *User's Manual.* Pan American Health Organization. Washington DC. 1999

- ☑ Priority sorting and labeling: the organization in charge of supply management should establish priorities for the different kinds of supplies depending on the most urgent needs. For instance, in case of an earthquake, supplies and medical equipment to treat wounds and broken bones should receive priority; in case of a flood, priority may be given to water and food.

  Thus, priority sorting makes it possible to give attention to the supplies being requested most urgently and separate them from those that may wait. All boxes and packages should be clearly labeled to indicate their priority. They should be grouped in different places at the entrance or receiving site.

  For example, the SUMA system uses the following levels[7]:

  Priority 1: Urgent – Immediate Distribution. These are identified with red labels.

  Priority 2: Non-urgent Distribution. These are items that are not required immediately but that may be useful at a later phase of the emergency. They are identified with blue labels.

  Priority 3: Non-priority Items. Non-urgent Distribution. This level includes those items that are damaged, expired, useless, unidentified, or whose usefulness is uncertain. They should be set aside to be examined later. They are identified with black labels.

- ☑ Supplies requiring refrigeration or special care should also be clearly labeled as such.

- ☑ Supply classification: for recording purposes, incoming supplies should be classified by category and subcategory, as mentioned in the section on *Categories* in Chapter 5. This, besides making identification of incoming supplies easier, contributes to unifying classification, storage, and stock control procedures.

8.2. Supply inspection, monitoring, and follow-up system

Supplies will travel a certain distance and go through a series of stops or stages from the entrance or receiving site to the people who receive them. To determine losses and deviations and use resources more efficiently, there should be an instrument to certify their passage through each of these "stages" and to indicate where the route continues. These controls should also indicate the type of supplies being transferred, their quantity, and condition, as well as identify the persons involved in the transfer process.

[7] SUMA. *User's Manual.* Pan American Health Organization.. Washington DC. 1999

Supply documents as well as checking and follow up procedures should be agreed upon and designed during the logistics-planning phase. The recording forms used have to be official, printed, consecutively numbered, and have enough copies to be distributed among the people responsible for the supplies at different stages.

Designing the documents carefully and ahead of time is important, as they will be used for cross-referencing purposes and to supplement information from the different stages in the supply route. It is important to clearly determine, too, the people who will be responsible for supply checking in each of these phases.

When defining checking procedures, a difficult task is faced: to keep a balance between simple methods that do not obstruct the flow but that, at the same time, prevent uncontrolled transfer of supplies. An important key is to make sure that the people in charge know how to use the different forms and that they properly implement the procedures and constantly supervise people and activities.

The aspects that should be controlled in each of the different phases of the supply route inside the country or region may be summarized as follows (Also see Table 4):

- ☑ Supply and donation arrival at the entry site (ports, airports, borders) and receiving sites (collection centers, institutions, etc.):

  - → Supply arrival and recording
  - → Temporary storage
  - → Supply exit (supplies delivered to be used or distributed, or transferred to another storage center)

- ☑ Supply and donation transportation to other storage centers or to the operations site itself

  - → Supply loading
  - → Notify the addressee about the shipment's arrival
  - → Transportation (including transfers)
  - → Supply unloading

- ☑ Receiving on-site or at secondary storage centers

  - → Physical and documentary verification of shipment (quantity, weight, quality)
  - → Recording incoming supplies
  - → Notify sender of shipment's arrival

☑ Supply storage

- → Recording supply arrival
- → Inventory and stock control
- → Hygiene and security measures at the storeroom
- → Expiration date and stock rotation
- → Loss and item destruction recording and certification
- → Recording of dispatched items

☑ Supply exit from storage center (delivered supplies to be used or sent to distribution centers)

- → Supply loading
- → Notify addressee of shipment's exit
- → Transportation (including transfers)
- → Supply unloading

☑ Assistance distribution

- → Incoming supply recording at distribution centers
- → Stored supplies
- → Beneficiary recording and identification
- → Beneficiary assistance delivery recording
- → Inventory and stock control
- → Daily distribution report

TABLE 4 Supply monitoring and control matrix

Stage or situation	Instrument / Control procedure*	What needs to be verified	Verification place
Entry to country or emergency zone of unsolicited donations and supplies	Electronic recording—SUMA-type System Manual recording sheets	Contents by category Quantity and weight Quality (supply condition) Origin	Entry point (port, airport, border, etc.) Receiving site (other collection centers)
When an order for a specific type of supplies is made onsite	Official order form numbered consecutively	That the person making the request be authorized to place orders Order content Any doubts or suggestions onsite should be dealt with	At the order receiving site
When donations or supplies are sent to the operations site or a site other than the storage center	Official order form numbered consecutively Official authorization form to exit or delivery	That the person making the request be authorized to place the orders Signatures and official stamps authorizing delivery That the cargo sent corresponds to what the documents accompanying it indicate (type, quantity) Destination	Temporary storage site for supplies (collection centers, receiving site) While loading the cargo on the corresponding vehicle
Supply transportation	Official authorization form for exit and delivery Cargo list or shipping guide numbered consecutively	Signatures and official stamps authorizing delivery That the cargo sent corresponds to what the documents accompanying it indicate (type, quantity) Destination	Temporary supply storage center While loading and unloading supplies
Receiving supplies at the site that ordered them	Cargo list or shipping guide numbered consecutively Form to record shipment arrival at the receiving site	General cargo condition Contents, quantity, and quality of supplies received should correspond to what was ordered That the cargo corresponds to what the accompanying documents indicate	Shipment receiving site
Supply storage	Record of storeroom arrival Physical and documentary inventory Supply delivery record Record and verification of losses and destruction of items in bad condition, expired, etc.	Inventory control Storeroom hygiene and safety measures Proper rotation of products	Supply storage center
Assistance distribution	Supply receiving form at the receiving sites Record and identify beneficiaries Distribution cards Distribution report cards Stock control	Compliance with criteria to select beneficiaries Correct application of procedures and use of established distribution instruments Reconciling what has been distributed and what remains	Distribution center Storage centers at distribution areas
All forms used should be numbered consecutively and provide copies to each of the persons involved in the corresponding stages.			

9. Transport

Transportation is the element in the logistics chain that makes it possible for assistance to arrive at the site where it is required. When defining the transportation strategy, it is important to take into consideration not only the necessary means and resources to move the supplies, but also to determine what the actual possibilities and alternatives are to deliver assistance. This means that supplies should not just be moved in any way and at any time, but that the challenge is to do so *safely* and in a *timely* manner.

Besides, transportation does not only refer to the mobilization of supplies inside the country or operations region, but also to the arrival of supplies from abroad, either those sent by the international community or those purchased by the organizations for their emergency relief operations. Very often, these movements imply the combination of several means of transportation, such as by air, land, or sea.

9.1. Types of transportation and their characteristics

The different routes and means of transportation have different characteristics and requirements that offer advantages and disadvantages depending on the particular circumstances of the operation. They also have different costs and capacity. But the decision about the type of transportation to be used is made based on other variables related to the needs identified and the concrete and available options. The following may be mentioned:

Needs*:* delivery urgency; type and characteristics of the supplies to be transported; cargo quantity, size, and destination; distance, etc.

Options*:* available means of transportation; costs and resources available; access conditions to destination (route condition, weather conditions, etc.)

The necessary resources to pay for the ideal mode of transportation will not always be available; the ideal transportation will not always be available; or access conditions to the area may not permit using a specific type of transportation even when available. Therefore, the challenge not only consists in determining the needs, but also the actual possibilities and alternatives.

For each means of transportation planned, there should be a backup plan in case circumstances make it impossible to use it.

Table 5
Characteristics of the different means of transportation

Type of transportation	Characteristics	Advantages	Disadvantages
Air (airplanes)	Usually used when supplies are needed urgently or when access to the affected area makes it impossible to use any other means	• Fast and reliable • Allows access to remote areas • Facilitates getting closer to the operation site	• Very expensive • Depending on the size of the plane available, cargo volume capacity may be limited • Susceptible to weather conditions • Require open space with conditions for landing and take off • Require special fuel, such as Jet A1, the most common, not always available at the operation site
Air (helicopter)	Much more versatile than planes	• Cargo capacity is usually small	• Able to land in remote areas
Land (roads and streets)	Using them depends on transit conditions (physical and safety) of the access routes to the delivery sites.	• Very flexible • Economical and higher availability (it is easier to find trucks and cars than any other type of vehicle) • As it is easy to get, cargo capacity is multiplied	• Routes may be in very bad conditions or may be nonexistent • Moving along roads in critical or conflictive areas may be dangerous (attacks, assaults, etc.)
Land (railroad)	Their use obviously depends on the existence of tracks and their condition	• Large capacity for heavy cargos • Operation costs are usually very low	• Supply loading and unloading is usually awkward at the train tracks or train stations • Other means needed to take the cargo to the storage center or operation area
Sea:	Mainly used for imports and obviously requires access to a port or pier to receive the cargo	• Large shipping capacity • Economical	• Slow • Other means needed to take the cargo to the storage center or operations site • Loading and clearance procedures are usually very slow
River transport	Useful to reach riverside communities when transporting a moderate quantity of supplies, or to travel in case of floods	• Low operating costs • Provides access to areas difficult to reach by other means	• Small cargo capacity depending on the size of the vessel • Its use depends on the size and characteristics of the river or navigable route
Human and animal	This works for small shipments to remote areas where there is no possibility of using motor transportation	• Low operating costs • Provides access to difficult areas	• Small cargo capacity • Slow

9.2. Commercial versus non-commercial transportation

Non-commercial or free transportation, offered at times by other organizations or volunteers, lowers operation costs but has the disadvantage that, in general, the vehicle's owner does not take responsibility for the safe delivery of the merchandise. It is important to take advantage of these services as often they are the only ones available, but in these cases, extreme safety measures must be taken to protect the cargo.

Although sometimes preferential treatment may be negotiated for humanitarian supplies, commercial transportation is a business like any other. When using commercial transportation, it must be kept in mind that not only the cost, but the company's reliability and quality (speed, security, seriousness…) are important. And since this is a paid service, full compliance with the agreed terms can be demanded.

As there are various contracting modes, which have both advantages and disadvantages, it is important to calculate requirements and interests carefully, as well as to carefully check what the contract price includes (for instance, loading and unloading services, driver's insurance, etc.). The following table shows some aspects that should be considered when contracting transportation services:

Table 6 Modalities for contracting terrestrial transportation*

Mode	Advantages	Disadvantages
By ton or ton/km	Payment includes transportation of goods regardless of the length of the trip or whether the truck is fully loaded or not. The cost of the service is set from the beginning.	• The carrier may take advantage of the freight to carry other clients' cargo, which may not be suitable for the security of the cargo. • The carrier could use an indirect route to add mileage to the invoice.
By each vehicles' trip	Exclusive use of the vehicle.	• The carrier may not fully load the vehicle to increase the number of trips. • The vehicle's size may not coincide with that of the load.
By vehicle per day	Exclusive use of the vehicle. This is usually the best alternative for short trips.	• The carrier may take each trip "very easily". • In case of damages to the truck requiring time consuming repairs, the charges could continue to mount, unless otherwise specified in the contract

Adapted from *Handbook for Delegates, International Federation of Red Cross and Red Crescent Societies*

9.3. Calculating the required transportation

To determine the type and number of vehicles needed, the following aspects should be kept in mind:

- ☑ Kind of supplies to be transported
- ☑ Quantity of cargo to be transported
- ☑ Destination: distance, access to the delivery site (air, water, land), conditions of access route
- ☑ Urgency of delivery

Table 7 presents a simple procedure to calculate the number of vehicles--either trucks, boats, planes, etc.--that would be necessary to transport a cargo with known weight and for an unknown period of time.

Table 7

Calculating the number of vehicles required (*)

Calculation procedure:

- How many tons of supplies have to be moved? What has to be moved? For how long?
- How long does a round trip to the receiving site take? (Do not overestimate speed, and include time for loading and unloading)
- What is the vehicle's cargo capacity?

$$\text{No. of possible trips per vehicle} = \frac{\text{period}}{\text{Round trip time}}$$

$$\text{No. of loads} = \frac{\text{total tonnage}}{\text{Vehicle capacity}}$$

$$\text{No. of vehicles} = \frac{\text{No. of loads}}{\text{No. of possible trips / vehicles}}$$

Add 25% time for contingencies.

(*) Taken from *Engineering in emergencies. Davis and Lambert. Intermediate Technology Publication Ltd. 1995, London.*

This table uses cargo weight to make the calculations, but volume should also be taken into consideration. This is the space the packages require according to their shape and size. If vehicles of different capacity are used in the operation, the calculation should be done for each vehicle. Similarly, if there are several destinations, the calculations have to be estimated for each of them.

Appendix 12 offers a table with some examples of the cargo capacity of land vehicles, and Appendix 13 presents examples of cargo capacity and special requirements of aircraft.

9.4. Vehicle Control

When circumstances permit, it is always best to contract a company rather than to manage a vehicle fleet, which is usually very difficult and involved. But the fact is that, during an emergency, different types of vehicles from different places are used for the relief operations: some may use diesel and others gasoline; some may be in good condition and others in bad shape; some may have their own designated driver; others may require appointing a driver, etc.

The most important thing, however, is to ensure that they are in good mechanical condition, and to establish maintenance and control measures to maximize the use of this resource.

The management of a vehicle fleet is practically a logistics operation itself, due to the number of activities it involves. Some of the procedures that must be followed are mentioned below:

- ☑ Appoint a person to specifically follow-up everything related to the vehicles. This person will supervise drivers and, among other things, be responsible for monitoring the application of standards for appropriate use and maintenance.

- ☑ Establish the use of control recording forms. It is best to keep a written daily record or "journal" for each vehicle for all relevant data about the vehicle: its condition and activities, the person responsible for it, mechanical service checks, mileage, fuel consumption, schedules, etc.

- ☑ Have a "one vehicle, one driver" policy in order to be able to assign maintenance and control responsibilities for each vehicle to only one person. Damages to vehicles are usually more serious when several people use them. Under these circumstances, it is usually more difficult to assign responsibilities for their use and maintenance.

- ☑ Drivers should be given accurate instructions about the use of the vehicle's "journal", daily and periodic routines, maintenance servicing, and their responsibilities and behavior standards.

- ☑ Drivers should check their vehicles daily before starting their route, especially when they have to travel long distances. Any problem related to the vehicle, whether mechanical or of any other type, should be immediately reported to the supervisor.

- ☑ Documents for both the driver and vehicle, including permits and insurance, should be fully up-to-date and kept inside the vehicle.

The following are examples of aspects that have to be checked on a daily basis in each vehicle.

Condition and level daily checklist

- ✓ Fuel level
- ✓ Oil level
- ✓ Radiator water
- ✓ Battery water (if applicable)
- ✓ Windshield cleaning fluid
- ✓ Brake fluid
- ✓ Hydraulic system fluid
- ✓ Tire pressure (including the spare tire)
- ✓ General condition of lights
- ✓ Fan belt tension
- ✓ Basic tools for the car

Service check

Type of Service	Service details	Date	Mileage	Next service
Engine oil				
Gear shift box, transmission, and hydraulic lift oil				
Fuel filter				
Air filter				
Suspension system				
Brake adjustment				
Fan belts				
Tire change / rotation				
Other services				

The data recorded on these forms should be checked periodically by the person responsible for the fleet to verify that the vehicles are being used properly and to keep the situation under control.

9.4.1. Fuel and lubricants

Fuel is a highly valued commodity at all times, especially when it is scarce as is usually the case during an emergency. To maintain supplies of fuel and lubricants for the operation vehicles, careful monitoring of their consumption, according to the trips made, should be established from the beginning.

Sometimes it is possible to get credit at a service station for refueling. Vehicles supplied upon presenting an authorized voucher. This is a very convenient solution, and it avoids the complication of having to store and deliver fuel ourselves. However, it also requires a strict control to prevent abuses and deviations.

For example:

- ☑ Refueling may be done upon the presentation of vouchers or purchase orders, which will only be valid when bearing the signature of the authorized person and the organization's official stamp. A previous agreement should be made with the service station about the type of document accepted to obtain fuel and other materials. These documents will also be useful when paying the fuel company, as payment will be made only for what the official vouchers indicate.

- ☑ Vehicle consumption is noted in their "journal", indicating the date and mileage of each refueling.

- ☑ These procedures should be checked periodically by the person in charge of the fleet, who should verify any abnormalities in consumption as they usually indicate mechanical problems or inappropriate fuel management.

Basic model for the control of fuel consumption relative to mileage:

Fuel control and mileage

Refueling date	Mileage	Amount and type of fuel	Average consumption (liter/km)

Table 8 shows examples of average fuel consumption for several types of vehicles. These averages are only a reference, as there may be variations depending on the type of route and road conditions, the quantity of cargo being transported, and traveling speed, etc.

Table 8

Vehicle average fuel consumption by 100 Km (*)

Gasoline engine		*Diesel engine*	
Sedan	8-12 liters	Basic Pickup	10-13 liters
Pick up	14-17 liters	Pickup van 4x4	13-16 liters
Land Cruiser	21-27 liters	Land Cruiser	14-17 liters
Minivan	15-18 liters	Small truck (3.5 a 8 tons)	18-28 liters
		Large trucks	35-50 liters

(*) Taken from *Supplies and food handbook. UNHCR*

9.5. Supply transportation

The cargo must be protected against damage, weather, theft, etc. The regular and standardized application of some basic measures may facilitate the safe arrival of the supplies at their destination:

- ☑ Vehicles should not be loaded beyond their stated weight capacity. Moreover, when the traffic route is irregular, dangerous, or in very bad shape, it is better to apply the concept of *safe* cargo; that is, that the vehicles do not take their maximum capacity to allow them to have more maneuverability on difficult terrain in unfavorable condition.

- ☑ In an open vehicle, the cargo must be covered with canvas or plastic to protect it against rain and dust as well as to also keep some confidentiality regarding the material being transported.

- ☑ The cargo must be firmly secured with ropes to prevent it from moving, which could damage the packages and bundles, and destabilize the vehicle.

- ☑ When land vehicles are being used to transport cargo bigger then the lateral dimensions of the vehicle (for instance, steel rods or rebar, lumber, pipes, etc.), the protruding ends should be flagged with a red or bright colored cloth so that other drivers may see them to gauge how much distance must be safely maintained.

- ☑ Ideally, vehicles should travel with their cargo door sealed; the seal should not be broken by anyone other than the addressee. However, vehicles frequently do not have cargo doors, so protective measures, including their responsibility regarding the safety of the supplies they are transporting, should be agreed on with the drivers before their departure. This also applies when vehicles have to be left overnight with their load onboard.

- ☑ The use of the appropriate equipment (refrigeration, coolers, etc.) should be taken into consideration when transporting supplies that require them.

9.5.1. Transportation of hazardous materials

When transporting *hazardous materials,* it is crucial to conscientiously follow all the procedures recommended by the MATPEL guidelines, according to the type of material. In addition, some basic safety measures should be kept in mind to protect people from these materials, such as:

- ☑ They should be kept separate from products for human consumption.

- ☑ Containers or packages with this type of product should be identified with the corresponding label according to international transportation regulations regarding hazardous materials. The driver should have the necessary knowledge of what to do in case of an accident or a spill involving the products being transported.

- ☑ In any case, when they are transported by commercial companies, *hazardous materials* should be declared as such so that the company can follow the corresponding safety procedures.

- ☑ The compatibility between chemical products and other products being transported with them should be ascertain to avoid the danger of their reacting during the trip.

- ☑ As a safety precaution, fuel (especially, gasoline, kerosene, and other highly flammable products) should be transported in non-metallic containers. If this option is not available, they should be insulated from the floor, metal walls, and from each other to avoid friction that could cause combustion.

- ☑ Containers with this type of material should be carefully checked for leaks or spills.

- ☑ Air transport firms normally prohibit loading any kind of fuel in any kind of container, and have strict restrictions regarding the transportation of chemical products.

- ☑ One safety measure observed by airlines is to totally drain the fuel tanks of any equipment being transported, such as electricity generators, water pumps, off-board engines, etc.

9.6. Convoys or caravans

A convoy or caravan is a group of vehicles traveling together to the same destination. It is better to use convoys as little as possible because individual vehicles travel faster and organizing a caravan involves a lot of preparation and logistical complications. In general, however, this procedure is commonly used to transport assistance to an emergency area, especially for long distances or when, for safety reasons, it is necessary for vehicles to travel in groups.

Sometimes several organizations decide to coordinate efforts and transport assistance jointly to the operations area by means of a caravan.

9.6.1. Basic safety measures

Emergency operations are characterized by contexts in which "normal" conditions have been interrupted or transformed. Therefore, routes may be destroyed or may be in very bad condition; there may be opposing armed forces; or social or political unrest that may pose a risk, etc. These situations require redoubling the safety and protective efforts that should in any case be used under normal conditions as well.

Besides, due to the complexity of this kind of operation, it is necessary to carefully observe some basic safety measures to ensure the arrival of assistance. These measures should be applied both for convoys and for individual vehicles.

- ☑ The vehicles used for the transportation operation must be in top mechanical and running condition, and should be checked before departure.

- ☑ From a safety perspective, it is better to travel during the day.

- ☑ Caravans should travel under the responsibility of one person capable of maintaining discipline and making decisions in case of trouble (malfunctions, accidents, safety incidents…). This person must be identified by all the participants before the convoy departs. When the caravan is comprised of several organizations traveling together, they should coordinate beforehand all aspects related to authority and decision-making.

- ☑ Safety measures, established ahead of time, should be known and respected by all the people participating in the operation in order to protect them and the supplies. For example:

  - ✓ Personnel behavior norms
  - ✓ Maximum traveling speed
  - ✓ Supply care and security
  - ✓ Travel and rest schedules
  - ✓ Dealing with officials on the road

- ☑ To decide whether a military escort is necessary, the particular circumstances have to be considered. For example, in case of a military upheaval, being escorted by one of the belligerent groups may raise doubts, force us to confront the opposition, or simply turn us into a military objective.

- ☑ Vehicle identification: this should be decided according to the situation, as in some cases (theft, plundering, confidentiality…), it may not be advisable.

- ☑ Communication: vehicles should have communications equipment in order to be able to contact each other and those at the departure and arrival points.

- ☑ Traveling documents: Documents for occupants should be in order and accompany them at all times; likewise, documentation for vehicles and cargo must be up-to-date and at hand while en route. Drivers should have a copy of the cargo list and the organizations' official written authorization to transport said goods, so the documents may be shown to the authorities when asked to do so along the route.

- ☑ Border crossing: if circumstances require crossing borders with supplies, arrangements should be made ahead of time with the authorities of the countries through which the vehicle will travel to facilitate procedures. Be sure that drivers or personnel accompanying the cargo have not been participants in international conflicts or tensions, nor have enemies there, which could impede their entering the country.

- ☑ When the route requires traveling through restricted areas, permission should be obtained ahead of time from the respective authorities.

- ☑ Evacuation or people transport: when mobilizing people, it is important for the convoy to be accompanied by a medical escort with the necessary basic health equipment. Likewise, water, food, and other basic supplies for their welfare and protection during the trip should be taken along in case of delays.

- ☑ In every case transportation operations personnel should carry with them the basic tools to face any situations along the route (mechanical problems, weather conditions, etc.) and their personal "survival" supplies, such as first aid, water, blankets, food, etc.

- ☑ If the caravan includes vehicles that transport hazardous materials, such as fuel, they should travel at the rear of the convoy.

- ☑ A small vehicle that can easily move around the convoy lines should be in the lead, with another in the rear. These should contribute to maintaining the caravan's unity, control, and rhythm.

- ☑ It would be very important to include backup personnel, such as doctors and a mechanic, in the caravan.

9.6.2. Route selection

The selection of the route depends on the vehicle available, how urgent the delivery is, the delivery schedule (for instance, if deliveries have to be made at intermediate points), etc.

- ☑ In general, the safest route has to be chosen, even when it is not the shortest. A number of variables must be weighed when making this decision, depending on the particular situation, time, and context.

- ☑ Service stops (fuel, food, mechanical services, medical attention …) along the selected route should be identified ahead of time.

- ☑ Critical sectors in terms of safety should be identified, as well as, for instance, roads in bad condition, landslides, assault areas, etc.

- ☑ Any changes or detours in the route selected as well as any special situation along the road should immediately be reported to the closest base, which may be either the departure or the arrival point.

9.7. Management of air operations

This section deals with cases in which our organization rents aircraft for relief operations and with situations in which, due to the quantity of assistance arriving by air, it is necessary to establish a plan to coordinate the arrival of aircraft and supply receiving and unloading.

These tasks require a great deal of preparation and dedication; therefore, a specific, experienced person should be appointed for this job.

Charter flights: A *charter* flight is one in which the plane has been rented for a particular service, thus, routes, schedules and, in general, flight operations are defined by our organization in coordination with the company renting the aircraft.

Another possibility is to have aircraft available, usually military planes, to collaborate with supply and resource mobilization to the disaster areas.

Whatever the case, some basic measures should be implemented to maximize the use of air transport resources:

- ☑ Landing site: ideally, an airport should be available, but this is not always possible. If there is no airport, a good landing strip must be available. The length and width of the

site must be adequate for the type of aircraft landing there. Terrain conditions should be evaluated and fixed or reconditioned for a safe landing.

- ☑ When working at an airport or landing field, it is essential to coordinate with the facility authorities for access to several areas, to define work areas, and to obtain all required information for managing the operation.

- ☑ All data about the characteristics (length, width, construction materials, orientation, location) and services (lighting, fueling,...) of the landing place as well as any other important details, such as the weather in the area or information about safety aspects, should be transmitted to those responsible for the aircraft.

- ☑ Arrival preparations: all details about paperwork for landing authorization should be verified with the local authorities (if any). It is necessary to determine the type of support and equipment needed for landing and estimate manpower required for unloading the aircraft. It is important to know if the aircraft needs to be refueled, which may be a problem, as the type of fuel used by aircraft is not always available, nor may the equipment necessary to pump it be available.

- ☑ Date and time of arrival: these have to be clearly established. To avoid confusions between AM and PM, it is more convenient to use the 24-hour system in which 1 in the afternoon is 13:00, 2 is 14:00, and so on.

- ☑ Landing safety: the person responsible for the operation, or the person appointed as such, should be at the landing site at least one hour before the arrival of the flight to check over conditions and remove any obstacles (people, animals, objects…) for a safe landing.

- ☑ Coordination center and flight plans: it is crucial to set up a coordination center where flight schedules and routes are to be decided daily. As a minimum, the following people should be at this center: the person responsible for air transport operations, an airline representative, and the relief operations coordinator.

- ☑ Aircraft capacity: the type of aircraft to be used depends on a series of factors which range from financial aspects that affect aircraft rental to the type of landing site available, and quantity and type of cargo to be moved.

10. Warehousing

Supplies have to be protected in some place until they can be distributed or utilized, but it is not a matter of just finding a place to keep items. Also, an organized system should be utilized which allows one to know the type, amount and location of the existing supplies in this place as well as reserves for later needs. We will call this process *Warehousing* and it has crucial importance for the protection of supplies. The organization of a warehouse should take into account the necessary guidelines for quality maintenance and safeguarding items.

There are places especially designed to serve the purposes of product storage, with appropriate characteristics and space to facilitate the different tasks done in a warehouse such as loading, unloading, and handling the merchandise as well as the storage area. However, before emergencies take place, we often have to improvise the space to store supplies in the places we have available (schools, community centers, gyms, etc.), which obviously have not been designed for these tasks. .

This chapter suggests common norms and procedures that must be applied in a warehouse for the maintenance and adequate storage of supplies. These are the ideal standards but they should be applied as fully as possible in any of the situations whether we have a building or should there be the need to improvise the warehouse, beginning with some available space.

Due to its importance and specificity, the issue of storage of medical supplies is discussed in detail in section 12.5. *Systems of storage of medical products.*

10.1 Warehouse types

Apart from the physical characteristics, we will distinguish three types of warehouses according to their function, although in reality we do not refer to separate warehouses but sectors inside the same warehouse, due to diverse factors such as the type of supply, the size and duration of the operation, and above all, the availability of space.

10.1.1 General shipment warehouse

This is the type of warehouse where products are kept either for a long time or while waiting to be sent to the field area or a secondary warehouse. In general, they are in the capital city or in key points of a given region.

10.1.2 Slow turn-over warehouse

In this place items are stored which are not either urgently needed or those that are not commonly used such as parts, equipment, tools, etc.

10.1.3 Fast turn-over warehouse

These are for items shipped on a daily or frequent basis. They are the most common in the area of operations and they usually hold items for quick distribution among the affected population.

10.1.4 Collection centers

During emergencies any place for the reception of donations is made available, which quickly turns backyards, offices, rooms and the garages of the organizations into piles of clothes, food, medicines and other products. In general, it is extremely difficult to organize a storage system in those places, above all for lack of space. For this reason, it is deemed necessary to quickly send the gathered items to a warehouse. However, the collection centers can be utilized to separate and classify donations, sending to the warehouses only those materials that are considered useful, separated according to category.

10.2. Selecting a place for storage

Special effort must be made in finding an adequate place for the storage of the supplies, although often there are many options in the emergency zone. But, while selecting the place, we should take into account some minimal basic concepts:

Type of supplies to be stored

Medications and food require a cool, dry and ventilated place. Some may even need controlled temperature. Other items such as clothes, equipment and materials have more flexible requirements. The emergency supplies consist of a small ratio of these things, and most of the time it will be necessary to store them in the same warehouse.

Appropriateness of the place:

The size of the place is quite important. Therefore, its capacity and the possibility of extending useful space should be taken into account. It is always best to have a place that is larger than necessary rather than some little space. There must be sufficient accessibility for large transport and its location must be taken into account with respect to the zone of operations.

Internal conditions of the site (structural and non-structural)

It is ideal to have a structure made of concrete, but whatever the type of construction, it should be in good condition for conservation and maintenance. It must not require extensive repair to make it functional. It must have a roof and doors, good ventilation, and adequate lighting. Before installing the warehouse, it will be necessary to check and repair

the wiring, sanitary facilities and fresh water source, eliminate leaks from the roofs, and seal cracks in walls and floors.

External conditions of the site (topography and social milieu)

Natural dangers should be foreseen (e.g. the possibility of floods or landslide zones). Stagnant water, garbage dumps, weeds and other environmental deficiencies around the site must be eliminated before using the place. The social milieu should be taken into account to prevent possible security problems.

10.3 Estimate of needs and storage capacity

The size of the warehouse needed depends on the number of expected supplies. However, in typical emergency operations in general it is quite difficult to predict the amounts to be received, above all because most of the supplies could arrive without being requested. For this reason, it is always better to procure the largest place possible, although at first it may not be necessary due to a lower number of supplies.

In addition, we know that independent of weight, supplies take different "storage volume." The following are examples of the approximate space required to store a metric ton of diverse supply types[8]:

Table 9.

Grains (rice, corn), flour, sugar in bags	2 m^3
Powdered milk in bags or boxes	3 m^3
Medicines ..	3 m^3
Vegetable oil in barrels or cans	1.5-2 m^3
Blankets in compressed packages approx. (700)	4-5 m^3
Loose blankets	8-10 m^3
Clothing	7-10 m^3
Tents (approx. 25 family tents)	4-5 m^3
Kitchen utensils (between 35-40 boxes)	4.5 m^3

In some emergency operations, in which there is more control over the supplies, for example, when there is distribution of food in temporary shelters for the injured, there is a specific and accounted for group of people and it is easier to know the number of supplies to work with,

[8] Taken from *Handbook for Delegates,* International Federation of Red Cross and Red Crescent Societies. Geneva 1997.

and as a consequence, the space required for their storage. Table 10 offers an example of how to calculate the need for space required for a given number of supplies.

Table 10

Determining required storage capacity (*)

What must be known	***Examples***
Population to be helped	Expected arrival of 30,000 people
Proposed distribution	One tent per family (6 people per average family)
Frequency of distribution	Once
Required period of supply	3 months
Weight/Volume unit of the goods	1MT= 25 tents = 5m3
Surplus supplies	10%

Estimates

Number of tents to store $= \frac{30.000}{6} = 5.000 + 10\% = 5.500$ tents

Volume of tents $= \frac{5.500}{25} \times 5\ m^3 = 1{,}100\ m^3$

For tents 2 meters high, the floor area required $= \frac{1.100m3}{2m} = 550m^2$

Floor load $= \frac{5.500\ tents}{25\ tents/MT} = 220MT$

$\frac{220MT}{550\ m2} = 0{,}4TM$ o $400\ kg/\ m^2$ (acceptable)

Estimate $550\ m^2 + 20\%$ for access and ventilation $= 660\ m^2$ of floor space

(*) Taken from S*upplies and Food Aid Field Handbook. UNHCR. Geneva, June 1989*

The following example is another simple tool for calculating the required area[9]:

Table 11
Estimate of the area needed for 100 tons of rice with 2 meters of storage height

1 MT of rice = 2 m^3

100 MT of rice = 200 m^3

Necessary area for the products: 200 m^3 : 2 m = 100 m^2

Total of required area: 100 m^2 +30%=130 m^2

Verification of actual loading capacity per m^2 = 100 MT: 100 m^2 = 1000 kg/ m^2

10.4 Alternative storage places

There will be times when it is definitely not possible to find an adequate place to build the warehouse, and under those circumstances there is a need to explore some alternatives in order to count on temporary storage places. A facility can be built with hard material (wood, zinc, etc.), or it could be made of reinforced plastic of the type used by Doctors Without Borders and OFDA. There are also other specialized materials, such as prefabricated structures used to make hangars out of curved metallic sheets.

A more simple solution, although for a short period of time, is storing items in freight containers or in the back of trucks, although this is not recommended for products such as food and medicines that cannot withstand the high temperatures generated in these places.

In any case, the decision about the type of structure to build is also related with the expected duration of the operation as well as the possibility of counting on a place that is in better condition later on. However, whatever the case, when an alternative place is built for storage, the conditions mentioned in the section *Selecting a place for storage* of this chapter must be observed.

[9] Taken from *Handbook for Delegates,* International Federation of Red Cross and Red Crescent Societies. Geneva 1997.

10.5 Required personnel

There must be a single person who is responsible for the administration, although this person will obviously have his or her assistants depending on the volume of operations. The most important aspect is to avoid several people delegated with the same responsibility, since this promotes confusion in handling, and it makes the identification of responsibilities in case of problems difficult.

Staff will be needed for the maintenance tasks and handling supplies in the warehouse area (unloading, loading, classification, movements, etc.). This staff can be comprised by volunteers from organizations, the community, or by the beneficiaries themselves.

The use of this type of manual labor helps reduce operational costs, but it is not exempt from problems related with the security of the supplies and the instability of the staff. Even though their duties are not highly specialized, these volunteers should receive basic training in carrying out their tasks, which can become complicated if a different team arrives every day.

When beneficiaries from the community itself participate, the exchange of "food for labor" is often a good alternative to reimburse their labor in kind.

In any case the administrator must receive a salary due to the nature of his duties and responsibilities. Security staff will also be necessary not only for the usual vigilance tasks but also to control the movement of unauthorized people within the immediate surroundings of the warehouse.

To ensure adequate performance of their tasks, everybody should receive written descriptions and clear instructions about their duties and responsibilities.

10.6 Equipment and materials required in the warehouse

Some of the equipment and materials basic for the functioning of the warehouse are:

- ☑ A computerized system (SUMA software, spread sheet, or any other system) if possible
- ☑ Forms and cards for the control of items in stock, receiving and transfer items. Stationery and basic office supplies, calculator, etc.
- ☑ Metal filing cabinet with lock
- ☑ First aid kit, fire extinguishers of the ABC type
- ☑ Electric generator and its corresponding maintenance material
- ☑ Refrigeration equipment
- ☑ Wood platforms (pallets or raised platforms) to stack items, shelving
- ☑ Tools to open and seal boxes, adhesive packing tape

- ☑ Scales, tape measure, ladders
- ☑ Cleaning materials and products
- ☑ Hand carts, hydraulic equipment for loading and moving shipments
- ☑ Safety gear for workers
- ☑ Weight and measurement conversion tables

10.7 Movement zones and warehouse sectors

In general, 70% of the available space is used for storage and the other 30% as labor space (movement zones, packing zones, access, etc.). To make it more functional and practical, the identification of zones and specific sectors inside the warehouse is necessary. A basic layout of space distribution is summarized as follows:

Arrival zone[10]

The point where supplies arrive and where receiving, verification and control of contents are carried out before storage.

Separation and classification and registration zone:

In this zone supplies are separated according to priority (urgent, non-urgent, dispensable) and are classified by category according to type

Packing and delivery preparation zone

Outgoing shipments are readied here. Empty boxes and recyclable packing material can be kept in this sector as well.

Storage zone

Material or supplies with no immediate destination are kept here. This zone is divided into sectors according to the type of supplies (food, clothing, personal needs, medical products, etc.).

[10] The arrival and delivery zones must share space in the case of places with one access door. In these cases the use of one of the entrance sides must be permanently assigned (left and right) for each activity.

Delivery zone

For storing the supplies which are ready for delivery. These supplies must be stacked on separate labeled pallets according to their destination.

Administrative sector

This can be a simple desk with a file (metal, with lock) for administrative management tasks.

Figure 1 shows the design of a warehouse which comprises the aforementioned spaces.

The planning of the use of space and the internal distribution must be done before supplies arrive. It is recommendable to mark guides on the floor to more easily locate the place that corresponds to the different types of supplies in the process of being stacked. When the different storage sectors have been established, hanging banners can be installed (as in supermarkets) which indicate the type of supplies found in each sector.

10.8 Storage and internal distribution of supplies

The rule of thumb in a warehouse is to never mixing products of a different kind on the same dock, pallet or lot, and that dangerous materials (including cement) must not be stored in the same place as food and other products for human consumption.

Other important aspects that must be taken into account are:

- ☑ The place should be thoroughly cleaned. Fumigation is recommended before the arrival of supplies.
- ☑ Supplies must be piled by sectors according to type.
- ☑ The floor must be clean and dry before stacking supplies.
- ☑ To avoid humidity and other problems, items must not be in direct contact with the floor or walls. Pallets and raised platforms must be used which are free of protruding nails or splinters that may tear the packages and bundles.
- ☑ If there are not enough pallets, these will be used with priority to pile up those products which are less resistant to humidity or which are packed in sacks, paper bags, cardboard boxes, etc. Bottles and cans can be placed on the floor, although they should not be kept there for a long time. Another solution is the temporary use of

plastic on the floor. Special caution should be taken when supplies are not stored on the second floor.

- ☑ The height of the stack must take the sturdiness of the packing material into consideration (or the instructions on the boxes, if any). The boxes must not block lighting.

- ☑ To facilitate the equilibrium of stacks, stacking must be done by changing the sides facing out of the bundles or boxes in each layer.

- ☑ It is extremely important to reduce height as much as possible. It may be necessary to brace the stacks when working in a zone with high seismic activity to reduce the risk of damage or injury during an earthquake.

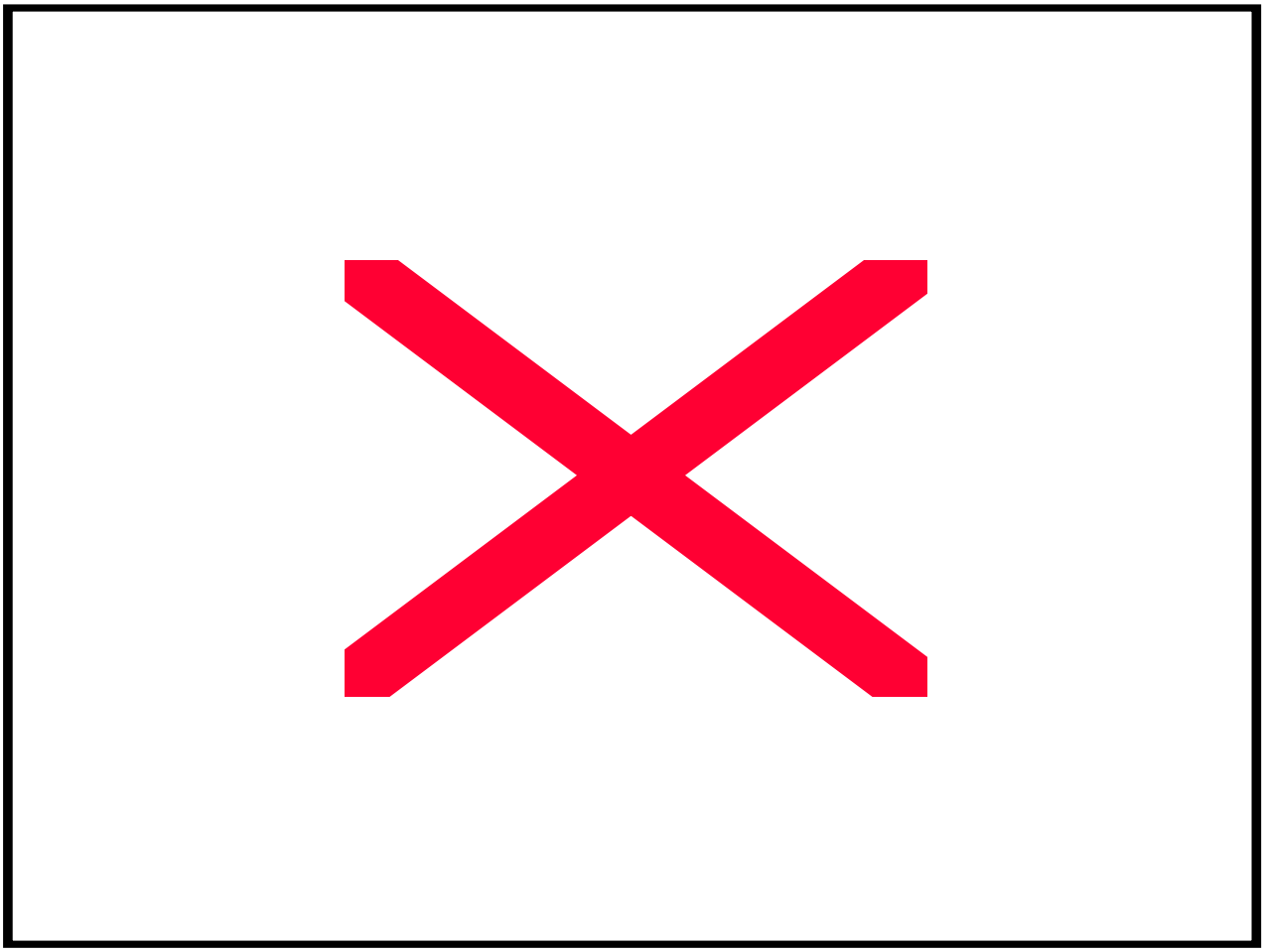
- ☑ There must be enough space between docks to allow the movement of people in maintenance, control or handling tasks, or hydraulic equipment if any. Air should freely circulate. The suggested distance is between 0.70 cm. to 1 m, but the distance has to be adapted to the availability of space in the warehouse.

- ☑ Special care must be taken to ensure that the packages containing liquids (oil, water, etc.) are stacked correctly to avoid spills.

- ☑ Leaking containers, as well as bundles or torn sacks, must be separated from those on the docks.

- ☑ Products in broken or deteriorated packages must be repacked or distributed as soon as possible provided that the damage in the package does not represent danger for human consumption.

- ☑ Never repack products for human use or consumption in containers whose previous content is unknown, as these may have been used for products that are dangerous for human health.



10.9 Procedures for shipping and receiving

These procedures are carried out in zones assigned inside the warehouse for the purpose, according to corresponding procedures and forms. They must be previously established, clearly understood, and applied methodically by people in charge. The forms must have space for the name and signature of the people who are involved in the process. (See Annex 6 *Sample Registration Form for Supplies Received* and Annex 7 *Sample Form of Registration of Sending Supplies).*

10.9.1 Arrival

Some of the common procedures that must be applied upon receiving supplies are:

- ☑ All loads that enter the warehouse must be checked in terms of quantity, weight and quality by means of manual and documented inspection. The contents must match the accompanying documents.

- ☑ Once checked, the shipment must be recorded in the inventory of the warehouse. It is important to write down any special information with respect to the supplies, for example, if a lesser amount has been received or if the weight or items are different from those listed in the delivery document. In these circumstances a "file" will be opened about the specific cases. This file will certify further verifications and will be used as a reference to investigate the anomaly.

- ☑ Undeliverables and returns: in some cases the whole part of some items delivered from our warehouse could come back because they could not be distributed, were unclaimed, etc. These must be registered as returns and not as new incoming shipments.

- ☑ By means of physical inspection of the shipment, the following must be identified:

  - ✓ Torn or wet bundles (packages, boxes, bags)
  - ✓ Bundles which show signs of tampering
  - ✓ Containers which have leaks
  - ✓ Canned food about to spoil or cans which are dented with signs that the product has lost its quality or that is not suitable for human consumption
  - ✓ Unlabeled canned products, those with labels in other languages, or with dates that have expired. These products cannot be distributed, since we cannot guarantee the quality of their contents.

- ☑ When food is received (cereals, for example), its possible infestation by insects must be checked. If detected, these products must not be allowed to contaminate clean products in the warehouse. A trained person must conduct any fumigation treatment.

- ☑ Powdered milk must be checked to make sure that it isn't rancid.

- ☑ In the case of corn, rice, beans or other grains, it must be determined upon entry whether the seeds are for raising crops or consumption. Often there are donations in the form of agricultural products that are not necessarily edible. Again, a knowledgeable person must conduct the inspection.

10.9.2. *Delivery*

Some common procedures for sending supplies are:

- ☑ Keeping products in the warehouse for as little time as possible. For this reason, the rotation of the stock is done through the principle of "first to come, first to go:" the products with the longest time in the warehouse are placed in the front area of the docks to be distributed first and the products which arrive later are placed behind them, waiting for their turn.

- ☑ The same principle applies to the products that expire. Those with the nearest expiration date are sent first. In the case of the same expiration date, the products that have been in the warehouse longer will leave first.

- ☑ Deliveries are made only with the official authorization document signed by the person in charge.

- ☑ The same procedure of manual checking must be applied to outgoing supplies to verify that the amount and content of the supplies sent match the statement in the accompanying documents.

- ☑ Every shipment must be recorded to be removed from the inventory of stocks.

10.10 Control and monitoring systems in the place storage

Part of our responsibilities is guaranteeing that supplies are used by those who really need them, and thus we avoid loss or improper routing. Likewise, storage conditions must be such that they allow optimal conservation of the supplies. Some of the measures in relation to this are:

10.10.1. Security of the supplies

- ☑ Only the personnel in charge can have free access to the facilities of the warehouse. The presence of unauthorized people must be avoided as much as possible; their access must be regulated, and they may only enter accompanied by authorized staff.

- ☑ There must be strict control of the keys to the warehouse.

- ☑ Day and night vigilance is required.

10.10.2. Rotating supplies

- ☑ It will be necessary to establish the minimum and maximum stock levels and the points of the new order of supplies. These levels are often different depending on the type of supply and the rhythm of rotation.

- ☑ Apply the principle of "first to come, first to go". To this end, it will also be necessary to keep an updated list of the entry and expiration dates of the different products.

10.10.3. Control and monitoring

- ☑ Clear and strict procedures must be established for the control of the arrival and departure of supplies.

- ☑ Each new arrival of supplies must be listed in the inventory. Even the products that do not arrive immediately or are deteriorated at the time of arrival must be registered as such.

- ☑ There must be a control card of stocks for each type of item stored in the warehouse (see Annex 8 *Sample Control Card of Stocks*) in which the dates and quantities of incoming and exiting goods are indicated, as well as the present balance and the area of the warehouse where the items are located.

- ☑ It is mandatory to take frequent inventories and update the control cards, the printed inventories and the computerized system, when it exists. The inventories, as well as the documents of outgoing supplies, have to correspond to the information recorded in the control cards of stocks (see Annex 9 *Sample Report of Stocks*.).

- ☑ It is necessary to have a clear, up to date record and control of the losses and certificates of destruction (of expired or deteriorated products). In general, the disposal and rejection of expired or deteriorated medications can only be carried out under the supervision of a professional or authority in the area, depending on the case and type of medication. This must be stated in a certificate of destruction.

- ☑ Control must be kept of the entry and expiration dates of the supplies to avoid losses due to expiration once inside the warehouse.

- ☑ There must be forms to record all movements in the warehouse such as entries, exits, orders, deliveries, etc. These forms must be numbered consecutively and should include the date and data of the people involved in the process.

10.11 Occupational safety in the warehouse

The warehouse has to be a safe place both for the supplies and the people who work there. That is why security measures must be applied. Among them:

- ☑ No smoking in the warehouse.
- ☑ The whole staff must be aware of dangers and security measures to avoid accidents.
- ☑ Maintenance staff must use protection gear for the back and hands when handling load, along with all other safety equipment and adequate tools to carry out their tasks.
- ☑ Legible signs must be posted to warn about danger.
- ☑ Fire extinguishers and first aid kits must be updated and remain in visible and accessible places. People who work in the warehouse must know how to use them.

10.12 Maintenance and sanitation measures

10.12.1. Maintenance

Frequent inspections of the building conditions must be carried out, especially for wiring, locks, roofs and physical plant. Any necessary repairs must be made as soon as possible to avoid greater damage.

10.12.2. Sanitation

The surroundings and the warehouse itself must be kept clean. It is necessary to avoid the buildup of waste or materials without control. Stagnant waters, weeds or any other element that may foster insect proliferation must be eliminated.

A plan must be established for daily cleaning of the warehouse and cleanliness in general, as well as periodic inspection of docks and sectors of the whole building. Also, a plan for handling and disposal of solid waste must be established, including deteriorated supplies, packing material, empty containers, etc.

The inspection of the warehouse must be done at least once a week in order to solve any detected problems in time. The inspection must at least[11]:

- ✓ Verify and eliminate insects, spider webs and cocoons in food supplies.
- ✓ Detect damage caused by rodents, birds or insects or by careless taking of samples from the sacks of grains and cereals.
- ✓ Verify water (e.g. leaks), mildew stains, discoloring or hardening of the bundles and sacks.
- ✓ Detect the leakage of liquids in containers and of products in bundles or torn sacks.
- ✓ Detect signs of cereal fermentation. To do this, several layers of stacked goods must be checked, especially the intermediate layers.
- ✓ Include checking all sides of the stacked goods.
- ✓ Include checking the corners and dark spots of the warehouse in order to find possible rodent nests or unacceptable accumulation of dust, garbage or other types of waste.

The main measure to avoid infestation is prevention. Animals must not be allowed into the warehouse. Contaminated food must not be mixed with other food products. Fumigation and chemical measures are common practice in the fight against pests in the warehouse, but these must be carried out by trained staff.

As a complement to hygiene and inspection measures, Table 11 presents some conditions that must be observed for the adequate storage of certain supplies.

10.13 Hazardous materials

These must not be stored in the same place as products for human consumption. The person in charge of the warehouse must be familiar with the guidelines and regulations for the identification, handling, transport and storage of theses substances. Products of this kind must be identified with standardized labels according to type.

[11] Adapted from "Stockage des denrées alimentaires. Manuel des pratiques d'entreposage*". Programme Alimentaire Mondial, Rome 1979*

Table 11 Storage of food products and gear

Type of supply	How it should be	Storage in moist climates	Shelf life	Comments
Whole grain cereals	Wet, ingeminated, without impurities. Maximum humidity content 15%	Dry, cool, ventilated place. On pallets. Maximum air humidity 70%	Approx. 6 months	Inspect: smell, humidity level, presence of parasites
Cereal flour	Dry, docks not very tight, sweet smell. Maximum humidity content of 15%	Same as whole grain cereals	Approx. 6 months	Same as whole grain cereals
Canned foods	No rust. No rot, cardboard in good condition, no leaks, expiration date current. With labels that identify contents.	Preferably on pallets	6-12 months depending on expiration dates	Detect damaged cans. If gas comes out when opening a can, that means its content is in bad condition
Powdered skim milk (in bags)	Dry, clean smell, ivory color	Dry, cool ventilated place; away from sunlight	1 year	It can be kept in darkness between 2 or 3 years, more or less at 15 degrees Celsius. Sometimes it hardens. This does not alter its value provided its smell and color do not change
Whole powdered milk (in bags)	Dry, clean smell, ivory color	Dry, cool ventilated place; away from sunlight	8-10 months	Same as skim milk
Sugar	Dry, granulated, no lumps, shiny	Dry place, ventilated docks	Several years	Absorbs humidity rapidly. Moist sugar in blocks is appropriate for human consumption
Medications	Expiration dates current. In original package. Packages not torn. No exposure of products to the elements in the open air	Dry, cool, ventilated place. On pallets. Some require refrigeration.	Depends on expiration dates	Control temperatures if products are to be kept in refrigeration
Blankets	Packed. Avoid humidity	Dry place, ventilated stacks		Wet blankets must be dried immediately. Beware of moths and fleas
Clothing	Packed, clean	Dry place, ventilated stacks		Same as with blankets
Tents	Packed. Avoid humidity	Dry place, ventilated stacks		Wet packages must be dried immediately

Adapted from *Handbook for Delegates,* International Federation of Red Cross and Red Crescent Societies. Geneva 1997.

10.13 Disposal of non-priority items and other supplies[12]

Significant numbers of donations received contain non-priority or even useless products. Both are an additional hurdle for the supply management system. However, it is necessary to distinguish between both types, since dealing with each is different.

10.13.1. Non-priority items

As stated in the section "Separation by priority and labeling," supplies that are non-priority at the moment of arrival could be useful later at some other stage of the emergency. For this reason, these products must be classified, labeled, and safeguarded until the moment comes when they can be used.

10.13.2. Elimination of other supplies

On the other hand, items considered "useless" (damaged, expired, totally inappropriate, etc.) must be eliminated as soon as possible, especially so as to have necessary space for useful supplies.

Unfortunately, this is not a simple procedure because in general we are dealing with tons of materials, which require logistics that include transport, temporary storage and disposal areas.

There is also a problem both "political" in nature and relating to image, since public opinion, including that of donors, generally deplores the elimination of products that they consider necessary to satisfy victims' needs, although these products are not actually suitable for human use and consumption.

The elimination of these products must be taken quite seriously, since they are not "just garbage". Often it is better to keep them stored until they can be properly eliminated and not just dump them in an empty lot where they could be scavenged, which turns them into a danger for public health.

These materials can be buried, incinerated, etc. But, most importantly, there must be a specific guideline for elimination procedures, which does not allow improvisation in the field. The situation is still more delicate if we are dealing with medications or dangerous materials whose disposal will require trained professionals due to required special handling according to the guidelines for their disposal.

[12] See Chapter 13 «Handling of Medical Supplies » for the topic of disposal and elimination of medications and medical problems.

11. Distribution

The major objective in the handling of supplies is the distribution of the assistance among the people affected by the disaster or the organizations in charge of their management in order to achieve well-distributed, egalitarian and controlled delivery to avoid abuse or waste.

11.1 Basic principles

Distribution cannot be a *generalized* or *indiscriminate* action. On the contrary, it must be *proportional and controlled.* Even though each organization has its policy and motivations in relation to helping victims of disaster, there are criteria that must transcend the individuality of the organizations and be applied as basic principles to achieve a more egalitarian and effective distribution.

In the case of an emergency, products and items must be distributed when they become strictly necessary to cover basic and immediate survival needs or for the improvement of the life conditions of the affected population.

- Assistance must be given only to people who really need it and in accordance to their needs. It is oriented to support people with suddenly interrupted storage capacity. That is why it should be prompt so as to account for critical times of need.

- It is supplementary and not meant to solve all problems of the population but as support for the most urgent and vital problems, as well as to support the effort that the affected people make to obtain subsistence.

- It must be pertinent and appropriate and adapt to local customs and traditions as well as environmental characteristics.

- It is temporary. Long-term assistance must be avoided because it generates dependence on foreign help and does not stimulate economic recovery in the affected area. Furthermore, in the case of displaced populations that need support for a longer period of time, assistance must be generated in a way that it promotes self-sufficiency and a quick return to normality.

11.2. Responsibility and criteria

Distribution is a highly complex activity that demands great capacity and experience. A badly managed operation can have negative impact on the population that is to be benefited. Therefore, before undertaking the task of distributing assistance, it is important to have clear both the responsibilities that this implies and the criteria that must be attended to so that this assistance brings about a positive change in the life conditions of the affected populations.

11.2.1. Criteria

As long as there isn't the capability to face organizational requirements, which an operation of this type demands, no action of distribution should be undertaken. The criteria for selection of beneficiaries as well as distribution methods and procedures must be defined as clearly as possible.

As much possible, we should confine ourselves to the "specialization" of our organization in relation to what we know how to do and what we do best. That is, we must avoid improvisation while carrying out activities which are different to those previously undertaken or incursion in areas in which we lack valid experience.

Moreover, it must be taken into account that, due to the evolution of the emergency, it is possible that our initial criteria have to be revised and adapted to new situations. But, in any case, any change of the intervention strategy must correspond to the realities of the field that are detected through an evaluation.

11.2.2. Responsibilities

As has been said, the objective of the assistance is to promote positive changes in the survival and overall living standards of the people. For this reason, it is our duty to make sure that all assistance procedures be gauged in this sense.

In situations of scarcity and in certain political and military contexts, resources and supplies turn into a source of power and control for the groups that have greater access to them. Politicians and other interested sectors frequently try to control distribution either to improve their public image or benefit particular groups.

Some groups or individuals could try to take control of the representation of the affected community and usurp assistance. On the other hand, there might be population groups that for different reasons (isolation, cultural reasons, etc.) will find it more difficult to get to the distribution centers or have access to assistance, so monitoring must take place in order to avoid exclusion.

For these reasons, equality in the distribution as well as protection of supplies is part of our fundamental responsibilities to prevent assistance from turning into a double-edged sword due to distortion and dishonest management.

11.3. Distribution systems

11.3.1. Situation of the affected population

Assistance can be given directly to the beneficiaries or by means of selected intermediaries to carry out this. The distribution systems adopted depend on both the situation and the particular conditions of the population to be assisted as well as on the real capacity of our organization to take charge of distribution.

The situation and conditions of the affected population often vary according to the disaster and mainly with the social, geographical or political context of the population. Situations of different types can even be present within the same operation area. Some of these, in general terms are:

- ☑ Victims who due to a disaster have undergone damage in their homes and property but who are still established in their area.

- ☑ Victims who due to the effects in their community have been evacuated to temporary accommodations different from the place where they live.

- ☑ Displaced populations (generally due to violence) who are away from their place of origin and whose return is often uncertain.

- ☑ Refugees: individuals who flee and settle down in a different country for fear that their security or lives may be at risk. The term "refugee" applies only to those who have been recognized as such by United Nations High Commissioner for Refugees, although this does not mean that such recognition must be expected to provide assistance, since obviously their needs are immediate, but it does mean that the actions will be eventually coordinated by UNCHR.

11.3.2. Direct distribution

To undertake direct distribution, thorough knowledge of the geographic and social context of the population and good, logistic, administrative and structural capacity is required. Distributing directly allows better control over donations, but it can turn out to be extremely complex if we do not have the aforementioned capabilities and experienced personnel. Some basic aspects to be taken into account are:

- ☑ When distribution takes place in an unfamiliar area, it is very important to identify people who are knowledgeable about the region and the community, people who can guide us and provide access and contacts. We should be careful to not put ourselves in the hands of manipulative people or those who endeavor to obtain personal benefit or advantages for a specific group.

- ☑ By the same token, it is important to identify leaders and organizations that represent the beneficiary population to coordinate efforts as much as possible, being careful to lose neither autonomy nor control of actions.

- ☑ Identify the existence of pressure groups within the beneficiary population and thus try to understand as soon as possible the local relations and antagonism dynamics. . This anticipates probable areas of conflicts and decision-making to avoid them or co-exist with them.

- ☑ During the first distribution a registration and identification system must be established and given to the beneficiaries. The document will be used to maintain control of future distribution of supplies. Most organizations use tickets, coupons, ration cards, receipts, vouchers, etc., which include information about the beneficiaries. These documents must be presented obligatorily with each new distribution of supplies (see Annex 10 *Sample Registration of Beneficiaries*).

- ☑ Some visible sign (seal, puncture, signature, fingerprint, etc.) must be applied to the distribution documents to certify that supplies were distributed and thus avoid duplication.

- ☑ Registration of families and not individuals is preferable. The number of members and ethnic groups that comprise the families must be registered. Thus, the delivery of the assistance will be even and proportional. Likewise, the particular needs of the members of the family must be identified, especially in the case of vulnerable populations (see Annex 10).

- ☑ The beneficiaries should receive equal treatment. Exceptions, preferential treatment and close relationships must be avoided, since these are a source of conflict that work against our own rules and security.

- ☑ Frequent changes in delivery procedures must be avoided. This is confusing for beneficiaries and upsets the course of the distribution.

- ☑ The organization should take steps to avoid exclusion of people who qualify as beneficiaries due to their condition but who for various reasons do not have access to distribution points.

- ☑ The distribution areas must be roped off or demarcated to avoid crowding or direct contact of people with the supplies.

- ☑ Beneficiaries must be told about the distribution system to be employed. Organized methods to carry out the distributions must be utilized (cards, lines, schedules by sectors, loudspeakers, etc.).

- ☑ It is important to grant responsibility to the same beneficiaries in distribution-related tasks (transport of supplies, organization of lines, construction of places, etc.). On some occasions, it will be necessary to recur to local personalities to facilitate organization, for example, translate to the local language or in communities whose ethnic characteristics thus require it.

Annex 11 shows a table used by UNICEF to estimate the food required by a percentage of the population during a given period.

11.3.3. Indirect distribution

When working in unfamiliar places it is very difficult for a non-local organization to carry out appropriate distribution in a short period of time. If the operative mission of our institution is not to carry out direct distribution, it is very important to find a loyal local counterpart that knows the population and place and who makes sure that the assistance is given.

This method is easier and quicker, but the final destination of the donations must be correctly monitored to ensure adequate delivery in the affected populations. Besides, visibility is sacrificed, which can be very important for some organizations. When this procedure is chosen, the following must be done:

- ☑ Identify a trusted counterpart with presence in the field, such as community groups, non-governmental organizations, social institutions, committees composed by neighbors, etc.

- ☑ Do not use organizations that are antagonistic or conflictive with the community or other organizations, or organizations that are openly identified as belonging to a political party or military faction in dispute. In any case, there should not be exclusive dealings with these, but try to establish balanced relationships to avoid security problems and labeled as unfair.

- ☑ Establish from the beginning and in collaborative way the chosen counterpart, agreements for action, and the procedures of control and monitoring of the distribution, as well as the way in which activities will be reported.

- ☑ Close contact, follow-up and feedback with the counterpart are required as well as our frequent presence in the field. This is essential to support their work and to make sure that the distribution is in accordance to the principles and standards of our organization.

- ☑ A periodic check must be carried out of the supplies distributed and remaining as well as monitoring of the distribution activities carried out by the counterpart in the field.

11.4. Monitoring and control of distribution

One of the fundamental tasks of the organizations is to make sure that assistance reaches the victims of disasters, and consequently, ensure that supplies don't fall into other hands. For this reason, control and monitoring components must be present in each of the stages of supply management, and very especially, during distribution. We will discuss two procedures:

11.4.1. Documented control y monitoring

Coincidence between arrivals to storage centers, shipments and departures of supplies from these centers as well as distribution receipts must be checked.

With the people in charge of distribution, stress the importance of always using the existing control forms; otherwise, the possibility of proper follow-up diminishes.

At the end of each distribution shift, people in charge must prepare a report. If there are outlying warehouses in the distribution centers, these should have permanently updated inventories.

In the case of indirect distribution, the counterparts must submit clear reports about the use of the resources they have been entrusted with and which they have had to hand over to the affected people. Our responsibility is to provide adequate forms and make sure that the reports are made.

11.4.2. Physical control and monitoring

The revision of documents alone is not enough and must be supplemented with frequent verification in the field, in distribution sites, not only for accounting reasons, but also to observe and determine the appropriateness of the procedures utilized, identify needs, correct problems, etc.

12. Management of health supplies

The term Health Supplies refers to medications, and medical, dental and lab material. Among the items required in a disaster, medicines are crucially important. For this reason, their availability and rational use must be ensured.

As in normal conditions, when working under extraordinary circumstances, such as emergencies, the health supply system must be oriented towards the optimal use of the resources, and it should be made accessible to all those who require it. For this reason, in times of disaster it is necessary to develop the same supply system process, adapting it, of course, to the particularities imposed by the urgent conditions and limited resources which emergencies often generate.

It is necessary to carry out activities for supply selection, acquisition planning, storage systems and distribution which guarantee both the presence of adequate supplies at the right moment and good conditions and proper use of the medical supplies.

12.1. Selection

The objective of selection is to obtain a listing of available basic medical supplies to provide assistance to the affected population so that efficiency and their security and are guaranteed.

12.1.1. Selection Committee

A committee must be established to undertake this task. This must be a multidisciplinary team (doctors, nurses and pharmacists) from the local environment, that is, specialists who know the needs for assistance of the affected population as well as the staff from the national ministry of health.

12.1.2. Selection Criteria

The selection of the necessary medical supplies should take into account the requirements for medical attention of the affected population, the characteristics of the patients that require treatment and the availability of supplies and conditions of the health system to attend to the requirements of the population.

Medicines and other supplies must be selected that are included in the basic list of the country or region where the disaster has occurred. If there is no such list, the sample list of the World Health Organization (WHO) must be taken into account.

In the case of the medicines, the level of use or degree of ability or training required must be established to formulate a group of medicines or a special therapeutical category.

12.1.3. Basic List

It is necessary to elaborate a basic list to attend to the acute phase of the disaster and possible epidemics that may occur. To determine this list the types of risks that can be present and the main diseases that appear in these types of situations must be taken into account.

Table 12 presents an example of a basic list with which one can attend to health situations present in most disasters.

WHO has prepared some standardized lists of essential medications and medical material (Emergency kit) to be used in emergency situations. The objective of these kits is to provide quick and efficient response with supplies that can satisfy priority needs[13].

The emergency kit is composed of two parts: a base unit and a supplementary one.

The base unit contains medications, medical material and equipment that is indispensable to primary health with limited competence.

The supplementary unit contains medications and medical equipment for a population of 10,000. It can be used only by medical personnel or by people with confirmed ability or training. The quantification of the medication of the units has been done on the basis of treatment regulations set by WHO technical services.

[13] World Health Organization. *The New Emergency Kit*. First Edition. 1992.

Table 12 List of Basic Medications

1. ANALGESICS, ANTIPYRETICS, NON-STEROID ANTI-INFLAMMATORIES	
Acetylsalicylic acid	Tablet 500 mg
Ibuprofen	Tablet 200, 400 mg
Paracetamol	Tablet 500 mg, syrup 125mg/5ml
Morphine chloral hydrate	Injection 10/ml
2. ANTIHISTAMINES	
Chlorpheniramine maleato	Tablet 4 mg, injection 10 mg/ml
Dexametasone phosphate	Injection 4 mg/ml
3. ANTIBACTERIAL	
3.1. Anthelmintics and Antiparasitcs	
Albendazole	Tablet 400 mg
Mebendazole	Tablet 100 mg
Metronidazole	Tablet 500 mg injection 500 mg, suspension 200 mg/5ml
3.2. Antibiotics	
Amoxicilin	Tablet or capsule 500 mg, Suspension powder 125mg/5ml
Sodium penicillin	Injection powder of 1 million IU. 5 million IU
Procainic penicillin	Injection powder 1 million IU
Sodium chloxacilline	Capsule 500 mg, suspension powder 125mg/5ml injection powder 500mg
Chloranphenicol	Injection powder 1 g
Trimetoprim-sulfametoxazol	Tablet 80 mg + 400 mg, suspension 40 mg/ 200 mg
3.3. Fungicides	
Ketoconazole	Tablet 200 mg, oral suspension 100 mg/5ml
Benzoic acid + Salicylic acid	Ointment or cream 6% + 3
3.4. Antiseptics	
Chlorhexidine	Solution 5%
Iodine-povidona	Solution 10%
4. RESPIRATORY TRACT	
Salbutamol	Tablet 4 mg, syrup 2mg/ml
Theophylline	Tablet 200 mg
5. ORAL REHYDRATION SALTS	

12.2. Planning acquisitions

The objective of this process is to dispose of the health supplies in the required amounts to attend to the affected population at the right moment while guaranteeing quality.

To carry out the programming of needs there must be a close working relationship among the people in charge of the management of the supplies and the assistance staff in the disaster zone, maintained through an adequate flow of information.

The quality of the supplies is the criterion that must be a priority independent of the types of suppliers. For this reason, it is vital to determine the conditions and requirements that the supplies must meet.

12.2.1. Needs assessment

To program the needs for supplies one must:

- Identify and clearly define the sources of supplies and suppliers we can count on, since we cannot depend exclusively on foreign aid.

- Carry out an epidemiological diagnosis to assess supplies amounts, taking into account not only the situations present in the acute phase of the disaster but also the possible epidemics that may follow this phase.

- Identify the affected population as well as its demographic composition grouped mainly by age.

- Establish the frequency of each health and disease problem.

- Confront the schemes or uniform norms of treatment for each of the disease problems, if they exist in the country, and deal with them using the national list. If one does not exist, it should be defined with the help of health professionals, so as establish the necessary supplies to treat each health problem.

- The needs assessment can be done as follows:
  [14]Necessary amount = Frequency of the disease X Amount of supplies needed for treatment.

[14] Contreras M, Carmen R. & Moreno R, Carlos. Editores. *Gerencia y administración de sistemas de suministros de medicamentos esenciales*. COHAN. WHO/PAHO Cooperation Center, 1999

- There must be a daily report made of the supplies in stock that includes the donations received.

12.2.2. Types of suppliers

Once the amounts of needed supplies are estimated, it is necessary to identify and define the different sources for supplies.

- Local purchases (or national): inventory of the local suppliers and of the amounts available for immediate delivery.

- International purchases: international suppliers can be contacted, mainly non-profit public service groups such as UNICEF and PAHO.

- Donations: taking into account that this is one of the main sources of supply in emergencies, and consequently, of health supplies, this topic is fully discussed in the following section.

12.3. Receiving and assessment of acquisitions

Receiving is the process by which what is requested is compared with what is received, regardless of the source, verifying the administrative specifications, as well as the quality of the supplies received. This procedure must be applied in any of the acquisition modes used.

12.4. Donations

Donations of medications and other health supplies that come from foreign institutions or countries, or local donations, can be specialized or the result of spontaneous solidarity. Unfortunately, quite frequently the latter type of supplies generates more problems than benefits due mainly to:

- The supplies donated do not respond to the needs of the affected population. In the particular case of medications, these may not be of therapeutical use according to the type of resulting illnesses or may not correspond to the level of attention of the receiving institution.

- In most cases donated medications do not have adequate labeling to meet the necessary specifications for their identification per common international denomination, have brand names unknown in the country, lack expiration dates or are in languages unknown in the receiving country.

- The donated amounts exceed needs, and cause problems of adequate storage.

- Often the medications received have expired or are in bad condition. This is a health risk[15].

12.4.1. Criteria to request or receive donations

Since medications are the main types of supplies shipped in disaster situations, the World Health Organization has had to establish a series of guidelines with respect to donations of these products. The guidelines are meant to improve the quality of the donations to avoid the difficulties previously before mentioned.

Likewise, a series of international organizations have set up an international forum that also seeks to regulate and obtain better conditions for the request and donation of this type of supplies. With respect to this, their web site can be visited to find a series of documents among which are guidelines for the proper disposal of medications, conditions for requesting specialized medical equipment, etc. The address is as follows:

www.drugdonations.org

It is even possible to subscribe for updated information and news on the topic.

WHO guidelines for the donations of medications[16] are based on four basic principles:

- Maximum benefit for the receiver: this implies that the donation must respond to the expressed needs and sending unsolicited donations must be avoided.

- Respect for the wishes and desires of the receiver's authority: donations must conform to the official policies and existing administrative arrangements.

- Identical norms of quality for all: if the quality level of an item is unacceptable for the donating country, it will also be unacceptable as a donation.

- Effective communication among donors and receivers: this must be effected so as to not send donations without previous notice.

[15] Contreras M, Carmen R. & Moreno R, Carlos. *Op. Cit.* p. 228
[16] Directrices Sobre Donativos de Medicamentos. OMS. May, 1996

With these basic principles in mind, some elements of such guidelines for donors are:

a. Selection of medications:

- All donations must respond to stated needs and be made in accordance with the diseases.

- All donated medications or their generic equivalents must be approved for clinical use in the receiving country and appear on the national list of essential medications; if there is no such list, on WHO´s list of essential medications, unless the country makes different arrangements.

- The means of administration, potency and formulation of the donated medications must be, as much as possible, similar to the ones used in the receiving country.

b. Guaranteeing quality and shelf life

- All donated medications must conform to quality guidelines of both the donating and receiving country.

- Donations must not include medications that have already been given to sick people and later returned. Nor should samples given to health professionals be donated. .

- When they are received, all medications must have an expiration date consisting of at least a year.

c. Presentation, packing and labeling;

- All medications must be labeled in a language easily understood by the health professionals of the receiving country. The Common International Denomination (CID or generic name), the pharmaceutical form, the potency, the name of the manufacturer, the amount in the container, the storage conditions and the expiration date must all appear on the label.

- If possible, medications must be sent in the largest available containers as well as in containers for hospital use.

- All donated medications must be packed according to the international regulations of transportation of goods and accompanied by a detailed packing list in which the content of each box, the CID designation, the pharmaceutical form, the volume and

weight, and if necessary, the storage requirements, are indicated. There should not be any other items packed in the boxes of medications.

d. Information and management:

- Receivers/Beneficiaries must be informed about projected donations, either those already prepared or in the process of being prepared.

- The stated value of the donation will have as a base the wholesale price of its generic equivalent on the local level. If the information is not available, the base will be the wholesale price of its equivalent on the world market.

12.5. Storage systems of medical products

The storage process has as its goal guaranteeing the quality of the health items so that it fulfills its function, establishing the necessary local, physical, hygienic and infrastructure conditions. Suitable storage conditions must ensure:

- The quality of the medications until they are used
- Their therapeutic efficacy
- No rapid deterioration or aging of the supplies

The warehouse or storage place must have easy access, allow for the cleaning procedures and have good air circulation.

Sites chosen for the supply storage must be located in places that have easy access so that the distribution process can be conducted efficiently.

12.5.1. Storage areas:

The area where required supplies are going to be stored must have space for their separation from other health supplies.

The storage area can be divided in various areas:

- ☑ One designated for medications to be immediately distributed, preferably on shelves located close to the exit.

- ☑ One designated for whole boxes of products.

- ☑ Another designated for medications that do not require priority distribution.

In each storage area medications must be shelved according to expiration date; soon to expire products must be placed ahead of those which are next to expire, so they may be distributed first.

The boxes must be placed on raised platforms or pallets and not directly on the floor.

12.5.2. Storage conditions

Pharmaceutical products and medical equipment in general require a great deal more care than other types of supplies. For that reason, it is important to strictly carry out a series of conditions to safeguard the condition of the products. The environmental factors to which the products will be exposed must be strictly controlled.

Light

Many medications are susceptible to light (photosensitive) and their quality will deteriorate when exposed to excessive light. For this reason, they must be stored away from direct sunlight or lamps.

Packing is of utmost importance to protect the medications according to their respective features and to guarantee the product's chemical stability. The type of package is taken into account when the useful life of the product is estimated. As a consequence, they should never be destroyed; on the contrary, the original package must always be kept.

Humidity

Another important factor that must be controlled in the areas where medications are stored is humidity. An environment characterized by high humidity may promote growth of microorganisms, such as fungi and bacteria; provoke chemical reactions such as oxidation of the medication's components. Tablets may soften or crumble.

Temperature

Maintaining suitable temperature conditions is essential for the stability of the medications. In order not to lose their properties, each type of medication has a limited temperature range. The temperature conditions for each specific medication must be indicated on the package. In case the conditions are not specified, it should be understood as normal room temperature. Medications must always be protected from extreme temperatures.

The main types of deterioration that medications can undergo due to temperature are loss of potency or degeneration into toxic products.

Storage temperatures are defined as:

Room temperature: 15-30° C.

Cool temperature: 8-15° C

Refrigeration temperature: 2-8° C

Freezing must be avoided (temperatures under 0° C) as well as temperatures above 30° C because in general they can lead to loss of potency or the physiochemical characteristics of products.

Vaccines, health items indispensable for the control of epidemics in disaster situations, require a reliable cold network (or cold chain). To this end, it is necessary to have refrigerators or freezers and thermometers to verify internal temperatures. If this is not possible, there should be boxes with ice and thermometers. Posting a chart that records daily temperatures on the doors of the refrigerators or on one side of the boxes is recommended.

12.5.3. Control and monitoring of products in storage centers

- ☑ Stock levels: these help to determine the under- or oversupply of items. It is ideal to keep medications in storage for the shortest time, but never allow stocks of a product that is still necessary to be totally depleted. Using a system of maximum or minimum levels of stocks may not be feasible when attending to a disaster. To manage the chronic phase of disaster, it is necessary to make sure that there are supplies in quantities that cover needs, so a level of stocks could be set which allows for attending to the affected population during the time required.

- ☑ Assessment of stocks: fulfill the expected levels of service. This requires data about diagnosed diseases, number of people affected, the patterns of use, and a specified time during which the population will be assisted.

- ☑ Checking stocks: this process is linked directly to acquisitions. It must ensure both orders as well as receiving adequate amounts of supplies. Good control of stocks must avoid damage or deterioration in the supplies due to the excessive storage time, supplies expiring.

- ☑ Checking as well as expiration: this must be carried out periodically, noting on the expiration dates of the medications, and keeping a record of them. Medications soon to expire should be distributed first. Expired medications should be thrown away. Under no circumstance should a medication be used if it has expired, since this can cause health problems.

12.5.4. Identifying of deterioration of medications

There are certain physical signs that can imply deterioration or degradation of medications and that should be verified to ensure good condition:

- ☑ Speckled or stained tablets
- ☑ Hardening or softening of capsules
- ☑ Undissolved particles in liquids
- ☑ Cloudy solutions
- ☑ Change in color
- ☑ Bubbles in liquids
- ☑ Bulging containers

12.6. Distributing health supplies

In disaster situations one of the most critical elements in the process of health supply management is distribution. Its objective is to ensure prompt availability of supplies necessary for the people affected to guarantee quality maintenance of supplies and avoid loss or improper of resources. Unlike to other supplies, these are not delivered directly to the population, but to specialized health-related institutions.

In order to undertake an efficient distribution system, there must be coordination between the different organizations or institutions that receive the supplies, especially with government organizations, which are responsible for attending to health (ministries of health)[17].

This requires the development of an information system that keeps track of the number of affected people, health problems that require attention, a record of the inventories of stocks in each of the warehouses or storage areas, and deliveries made.

The supplies must be distributed in response to demand and physical stocks. Moreover, for efficient distribution the following aspects must be taken into account:

- ☑ Transportation: there should be suitable means of transportation. Available vehicles of the public health system can be used or from other health organizations such as the Red Cross. In some cases, arrangements can be made with the suppliers so that they deliver the supplies directly to the health units or to places where the supplies are required.

[17] Management Sciences for Health. *El Suministro de Medicamentos*. Boston, USA. 1989

- ☑ Delivery intervals: according to the needs (in relation to the levels of stock and the rate of consumption), with the transportation time and distance, the appropriate intervals of delivery of resources will be established. .

Even if we are working in a disaster situation, we must not forget to provide appropriate information to patients about the use of, nor monitor their use by affected persons, as well as by those that prescribe the medications. In other words, we may not stop ensuring the rational use of the medications.

13. TRANSPARENCY AND INFORMATION IN SUPPLY MANAGEMENT

13.1. Transparency

Assistance for populations affected by disasters and the use made of this assistance may promote distrust in public opinion, even among international donors that have contributed with resources. Diverse experiences of poor assistance management generate negative preconceptions, although oftentimes this mistrust originates due to lack of information with respect to the final destination of the aid.

For this reason, our organizations must adopt an attitude of openness in the management of resources, especially when we appeal to solidarity (national and international) to complement the resources that we require, which also turns these supplies into public goods.

Transparency implies the foreseeing of mechanisms that allow for verification of management of supplies at any stage, as well as keeping collaborators informed with respect to the result of their help. Transparency is the best way to trust and to open doors to obtain the necessary resources to widen our actions.

13.2. Information

Information about the administration of supplies must be spread from the actual beginning of the emergency, when the assessment of needs is done, to the moment when national and international cooperation is requested. During the course of aid, status reports are issued about available supplies and those required. Early disclosure of reports avoids rumors about negligence.

Besides widely broadcast information by the media, it is extremely important to think about the information shared in the field of operations with different interested parties. In relation to this, those responsible for the management of the supplies must maintain good rapport so as to inform local organizations, the affected population and other participants verbally or in written form.

13.2.1 Reports to donors

Donors that support humanitarian activities—governments, large companies, international organizations or individuals—need and demand information about the final destination of the resources they have provided, whether these have been used properly, and if their contribution has been useful.

Humanitarian organizations need to keep on counting on active donors to cover for the needs for assistance in the operations they undertake, and to guarantee this same support for future interventions.

Consequently, a reliable resource management system should be generated which can clearly demonstrate how the assistance has been carried out where the donations have ended up. Thus, keeping donors informed about the use of resources is mandatory. .

In the first place it is important to notify the donor when the contribution has been received in cash or in kind. The ways for this notification are diverse and they depend, among other aspects, on the type of location of donor. For example:

- ☑ Local notification to the representatives of the donor in the country: embassies, organization headquarters, branches of corporations, etc.

- ☑ Direct notification to the donors when it is possible to establish contact with them.

- ☑ Public information: most donations come from the population and small donors who might not be identified. For this reason, the media must be used to thank in a general way those who contribute, and to offer approximate figures about the contributions received and about the distribution activities taking place. Organizations with electronic means such as web sites could use them to publish reports about donations received and donated.

13.2.2. Information for public opinion

Information provided to the greater population can serve to fulfill the most diverse needs, from development of a specific activity in the population to reducing tensions and pressures that are the product of ignorance regarding assistance steps carried out.

For example:

- ☑ Inform the population about the type of supplies required, those which are needed and those which are not recommended, places designated to receive their donations, etc. This can orient possible local donors and reduce the delivery of improper and undesirable donations.

- ☑ Inform the affected population about the needs that will be attended to, the ways, places, dates and people responsible for the distribution, etc. so that the beneficiary population can have access to the assistance.

- ☑ Inform the population about the type and amount of supplies received and distributed as well as the actions undertaken, the results obtained, and the difficulties faced. In this way, one can appeal to the understanding of the public about the cases in which complications of a logistic type make assistance tasks difficult.

The reports must be summarized as completely as possible and the media must be selected according to their capacity to fully inform the public, taking advantage of the media in the zone of operations.

13.2.3. Press relations

The press often has a screening function and an attitude of denouncing. They will in general exercise pressure on the organizations, mainly pointing out the drawbacks of the system more than the achievements of the assistance. But this tendency can be reversed if we adopt an attitude of effective communication with the press. We could use them to generate our own information and press releases. In like manner, the media are one of the most effective tools that we can use to orient donors in relation to the needs and the importance of refraining from making unsolicited donations.

Those responsible for management of supplies should not expect the media to request information. On the contrary, the content as well the form of the information (press releases, press conferences, interviews), the frequency, the essential media, the official spokesmen, among other aspects, should be defined beforehand so that the initiative and the information tasks are in our hands not in the journalists'.

It is recommended that information to the press or any other interested party be delivered in written form and duly verified. It could be general reports about the total extent of the zone or region affected, with details about communities or areas. At the local, level reports with the details about the area can be given.

Finally, information tasks should not be considered an undesirable hurdle but an instrument that can eventually benefit and facilitate the assistance tasks. For this reason, efforts should be made to keep donors, the press and the public informed so that these participants may be our strongest allies thanks to our willingness for transparency.