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*BA IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT*

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*COMPILED BY: MEBRAHTU TEKA (PhD)*

*DEPARTMENT OF MANAGEMENT PROGRAM OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT*

*COLLEGE OF BUSINESS AND ECONOMICS*

*MEKELLE UNIVERSITY*

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**Chapter One: Logistics In Humanitarian Sector**

**1.1 Introduction**

Humanitarian Logistics is central to disaster relief for several reasons. First, it is crucial to the effectiveness and speed of response for major humanitarian programs, such as health, food, shelter, water, and sanitation. Second, with procurement and transportation included in the function, it can be one of the most expensive parts of a relief effort. Third, since the logistics department handles tracking of goods through the supply chain, it is often the repository of data that can be analyzed to provide post-event learning. Humanitarian logistics managers must work actively to make the association a useful, vital network. In particular, they must choose initiatives for the association to work on that are critically important. They must then invest the time and effort needed to support and gain from the initiatives while leveraging the expertise and resources of the group. This will require more frequent, intense communication and coordination among group members. It will also require a continual reflection about how the group can be used to support an individual organization’s goals.

**Basic definition**

The term logistics has been used in different domains, each possesses different definitions. The earliest application was in military, defined as the science of planning and carrying out the movement and maintenance of forces, those aspects of military operations that deal with the design and development, acquisition, storage, movement, distribution, maintenance, evacuation and disposition of material. Business experts perceived the benefits in application of logistics from the military and transferred the practice into commercial, defined as a planning framework for the management material, information, service, and capital flows. Until recent years, logistics has been further employed in **humanitarians**, defined as the process of planning, implementing and controlling the efficient, cost-effective flow of and storage of goods and materials as well as related information, from point of origin to point of consumption for the purpose of meeting the end beneficiary’s requirements’. Humanitarian logistics encompasses a range of activities including procurement, transport, tracking and tracing, customs clearance, local transportation, warehousing and last mile delivery. A humanitarian is a person who cares about people and who often participates in charity or does good work to show that care.

Humanitarian logistics refers to the processes and systems involved in mobilizing people, resources, skills and knowledge to help vulnerable people affected by natural disasters and complex emergencies. According to Thomas, humanitarian logistics is defined as the process of planning, implementing and controlling the efficient, cost-effective flow and storage of goods and materials, as well as related information, from the point of origin to the point of consumption for the purpose of alleviating the suffering of vulnerable people*.* The common aim of this is to aid people in their survival.

* 1. **Humanitarian Supply Chain and Commercial Supply Chain**

Commercial supply chain can be defined as ***a network that supports the flow of goods, information and finances from the source to the final customers***. One of the most significant changes in paradigm of modern business management is that individual businesses no longer compete as solely autonomous entities, but rather as supply chains. Business management has entered the era of inter-network competition and the ultimate success of a single business will depend on management’s ability to integrate the company’s intricate network of business relationships.



**Figure 1.1: Commercial supply chain network**

Humanitarian supply chain can be defined quite similarly to commercial supply chain as a ***network for managing the flow of goods, information and finances from donors to affected persons.*** The ultimate effective of humanitarian supply chain management has to be able to respond to multiple interventions, often on a global scale, as quickly as possible and within a short time frame. Therefore supply chains need to be multiple, global, dynamic and temporary. In this era of globalization, this concept is applicable to the private sector as much as it does to humanitarians. Similar to commercial supply chain, the structure of a humanitarian supply chain can vary for different disasters and regions. There is no single form of humanitarian supply chain, although a typical supply chain could follow the sequence in the following figure.

The supply chain here under describes a multilateral approach through international agencies and NGOs, although aid is often given on a bilateral country-to-country basis, and delivered in a number of ways. Unlike most business supply chains, the humanitarian aid supply chain is often unstable. Sometimes, the supply chain breaks down at the receiving end, but it may also be unstable at its origin for two main reasons: politicized donations by governments and the competitive nature of fund-raising from private donors. The supply chain is a network of facilities and distribution options that perform the functions of procurement of materials, transformation of these materials into intermediate then finished products, and distribution of these finished products to customers. A supply chain comprises a series of stakeholders which are suppliers, manufacturers, distributors, retailers and customers. The supply chain flow chart is shown in figure below. The structure of the supply chain can vary dramatically for different companies, even within the same industry. In addition, the role of an organization with respect to its span or degree of control over the supply chain can vary significantly. A supply network supports three types of flows that require careful design and close coordination:

**Material flows** - represent physical product flows from suppliers to customers as well as reverse flows for products returns, servicing and recycling

**Information flows** *-* represent order transmission and order tracking and which coordinate the physical flows.

**Financial flows** *-* represent credit terms, payment schedules and consignment arrangements.



**Figure 1.2: A typical humanitarian supply chain**

* 1. **Challenges, Gaps and Trends in Humanitarian Logistics**

This section presents issues that negatively impact logistics operations during humanitarian relief missions. The manager tasked with controlling the influence of these factors is challenged to direct not only those operations within his or her span of control, but must also consider the effect of the following barriers on his or her agency, partners and relief beneficiaries.

**Uncertainty -** the most challenging obstacle in humanitarian logistics is uncertainty. Usually, there will be no indication as to when a disaster will strike, how many people will be affected, what infrastructure will be left intact, which suppliers will donate, or what other obstacles may arise. Uncertainty can stem from many elements relating to the mission, the organization itself, or nature of the demand. For example, uncertainty may arise from inherent characteristics such as what and how much material is demanded, product traits, process fluctuations, and supply problems. Supply chain configuration and control structures, long forecast horizons, decision complexity, poor information reliability, and agency culture may create uncertainty. As supply chains become larger and more geographically diverse, natural and man-made disasters can also disrupt the supply chain. Regarding uncertainty, in 2003, Sowinski quotes “... disasters are the embodiment of randomness”. You don’t know when they’re going to happen, where it’s going to happen, and who’s going to be affected. This is the ultimate execution of a sophisticated supply chain, particularly from an algorithmic planning basis. Every other supply chain is based on predictability.

**High uncertainty in demand-** two earthquakes of similar magnitude may have entirely different outcomes if one hits a high population density area in a developing country and the other hits a better-prepared city in a developed country. Relief demand is unknown both in size and type and it is affected by dynamic and hard-to-measure factors such as disaster characteristics, local economy and infrastructure, social and political conditions etc

**High uncertainty in timing-** in general, it is difficult to predict exactly when a disaster is going to strike. This time frame could be relatively delimited as in a hurricane season or hardly predictable as in an earthquake. Therefore, one needs to be in a constant state of readiness and to plan during an uncertain time, which requires additional flexibility.

**High uncertainty in location-** we may know where the fault lines are, but we cannot predict either when or where an earthquake will happen. For other disasters such as hurricanes, we may have more information based on historical data that help us predict the path after it starts, but even a specific storm can change paths. Affected locations might also be dynamic as in the case of a pandemic influenza, so planning should account for this. Location uncertainty imposes additional challenges to preparedness activities such as relief supplies and equipment pre-positioning, infrastructure investment etc.

**High uncertainty and challenges in supply-** donations may be variable or restricted in their use by donors, while in-kind donations may also be inadequate and unmatched with the demand. Building up relationships with local vendors, usually in a very short period of time, may be a difficult task as well.

**Challenges in collaboration among the multiple players and decision-makers in a humanitarian supply chain -** each of the responders (governments, military, local authorities, etc.) may compete for limited resources to achieve their own goals, such as when many organizations needed the limited resources of the airports during the 2004 tsunami. Organizations and governments may also have different incentives that impair the effectiveness of collaborations.

**The impact of the political, cultural and socioeconomic conditions of the region**

Responders must have an understanding of the region as they are usually in a highly politicized environment. Unawareness of specific local issues may cause even the best stand-alone plan to fail or become impractical. For example, genetically modified food is prohibited in some Southern African nations such as Zambia, restricting food aid programs. The human factor is crucial in humanitarian operations, which includes language, customs, political views, etc. Also, every organization involved is under the public eye which put more stress on the response operation.

**The strong dependency of last mile operations on the location and disaster severity**

Transportation infrastructure might be disrupted and required equipment may not be locally available, affecting the supply chain responsiveness. This can be aggravated by a limited location access or poor construction. This was the case of the 2005 earthquake in Pakistan, where people lived in mountainous regions and had limited aid access because of obstructed roads.

**Limited telecommunications and information infrastructure**

The Internet is still not widely available in some developing countries. Land-based phones and cellular phone communication towers might be down as a result of a disaster, as was the case after Hurricane Katrina hit. Also, since there might be more than one organization collecting data, it is common to find inconsistencies in the aftermath reports.

**Long-term impact of the many activities carried out during humanitarian operations**

This happens as cities are rebuilt; people are relocated, new products and vendors introduced to the local market, etc. This is the case of the food aid monetization from the U.S. government, which starts with a donation of food to non-governmental organizations (NGOs) around the world, and then NGOs get funds for other aid programs by selling the in-kind donations in the local markets. There are tradeoffs between short-term effectiveness of the response and a long-term impact on the communities that guarantees their sustainability.

**The success of humanitarian operations is hard to measure**

Economic success is the standard performance measure in the profit world. But for non-profit organizations this evaluation is more complex, considering difficult-to-formulate elements such as unmet need fulfilled and more tractable ones like cash flow. Keeping complete track, control and accountability of the humanitarian programs and their outcomes is challenged by the high urgency and pace of this type of operations, and time for analyzing and recording is usually tight.

**Degraded Infrastructure***-* inadequate transportation and communications infrastructure is another barrier to effective delivery of aid. The overall effectiveness of relief logistics often depends on the level of prior investment in both the transport and communications infrastructure and how far relief requirements have been considered in the planning. Rapid onset of a disaster may degrade the country’s existing infrastructure to the point where delivery of aid is severely hampered. Often transportation infrastructure is in poor condition and cannot handle the huge numbers of refugees, military vehicles, and relief shipments that pour into these areas in times of disaster.

**Communications-** Poor communication is a major barrier to delivery of aid. Not only are there obvious difficulties associated with speaking to someone using a different language, but the communications infrastructure may be crippled by a disaster (if it ever existed in the first place). Teams at a disaster site may not be able to communicate upstream with headquarters or donors. The relief agency may not be able to effectively communicate needs to donors. But the organizational language and terminology may hamper the aid process. For example, some organizations estimate need on a family basis and others use a per person basis. Organizations may use different names and definitions for transportation modes, supplies, the composition of worker teams, etc. This is an indication that organizational and cultural language may lead to procedural difficulties.

**Human Resources-** poor or nonexistent training ultimately affects the quality of any logistics operation. Field managers are faced with an onslaught of requirements during the relief effort, including demands from the affected population and local government, pressure from international media, monitoring agency attention, and restrictions imposed by donors on how aid is administered. In the midst of this confusion, field operations managers are also faced with recording progress and passing information back to their headquarters and media partners as well as providing a record of events for future managers.

**Earmarking /allocating of Funds -** another major problem faced by logistics managers in humanitarian organizations is that the donor has significant influence over where and how aid is distributed while the victim is a third party with little voice in the matter. Funding for organizational support and infrastructure is often neglected under donor demands that as much aid as possible is pushed to victims. Thus, distribution channels may suffer as warehouses, equipment, communications infrastructure, and training remain unimproved or deteriorating. Earmarking funds specifically for the affected population can also lead to a lack of parts and service support for the truck and planes required to move material aid and lack of funding for un allocable costs such as headquarters expenses.

**Other Barriers-** many countries have specific dietary needs.Medical goods such as pharmaceuticals, blood, and equipment often have temperature and moisture sensitivities, as well as an associated manpower burden thanks to a variety of wrappings and markings that complicate sorting and storage.There are also challenges posed by inventory shrinkage through damage and theft by parties along the distribution chain.They note that sometimes the only way to get enough food to the intended population was to flood the pipeline with so much material that the thieves would take their fill and let the rest pass. Complex documentation requirements for customs and port clearance can also be a problem. Aid must sometimes travel through several countries using several modes of transportation. Each time the goods change hands, an inventory must also be done for accountability purposes. Movement may be made easier by collaborating with local governments to streamline importation permits and internal movement, however this may not be possible if the host government does not exercise sufficient control over the ports or if cooperating with that government compromises the humanitarian organization’s condition of neutrality.

* + 1. **Potential Methods to Overcome Barriers**

Supply chain management is used to efficiently integrate suppliers, manufacturers, warehouses, and outlets; so that services or products are produced and distributed at the right quantities, to the right locations, at the right time, in order to minimize system wide costs while satisfying service level requirements. In a well-functioning supply chain, at every link, each unit should treat the next unit as a customer, always focusing on service to the ultimate customer, the end user. Management methods for dealing with uncertainty, acting on a local or regional scale, improving command and control, conducting assessments, improving collaboration and using logistics information systems will be examined. In addition the use of military partners, resource management, and transportation management methods are considered. Whether implemented in part or in whole, the methods serve to improve response to disasters when applied to the humanitarian logistics network.

**Dealing with Uncertainty: -** There are many different sources of uncertainty. Although uncertainty cannot be eliminated entirely, there are SCM methods which can minimize the effect. Many of these techniques focus on reducing performance variability of separate functions in an effort to reduce negative effects on the system. Another method involves using information to forecast supply and demand. Careful collaboration and planning with partners helps cut down uncertainty.

**Acting on a Local or Regional Scale: -** Many authors point out that local authority, if capable, should be the first source of relief for the affected population. This permits a response tailored to the cultures and lifestyles of the victims, stimulates the local economy through increased commerce and use of local labor, keeps the local government involved in the process while preventing issues of infringed sovereignty, and eliminates much of the logistical burden in transporting and storing supplies from outside the region.

**Decisive Command and Control: -**Probably the single most beneficial step to managing the supply chain is to improve communication, command, and control. This reduces the variances encountered in the supply pipeline by coordinating all entities involved in the chain. The humanitarian coordinator concept supports the deployment of a senior and seasoned official to start up coordination and can be used to great advantage, especially for responding to fast-breaking crises. The advisor needs the ability to facilitate coordination among program units and among programs, donors, and other agencies.

**Pre and Post Disaster Assessments:-**

Another command and control tool that feeds into information sharing and forecast preparation is the vulnerability assessment. To conduct a vulnerability assessment, a team of experts is sent to a region with known vulnerabilities to record the state of the infrastructure, local response capability, and current status of the population.

**Collaboration**

Collaborative planning between supply chain partners is another command and control strategy. Collaboration is way to use strategic partnerships with other organizations to achieve a common goal while sharing both rewards and risks.

**Logistics Information Systems (LIS)**

Implementation of logistics information systems for the humanitarian relief community would greatly enhance coordination between partners, sharing of training and lessons learned, and storage of data that would aid in inventory visibility and demand forecasting. Relief workers, both in the disaster site and at their respective headquarters, need to know what supplies are available, where the supplies are located, and how best to transport them. Some of the general benefits of inventory visibility, all facilitated by the LIS, are: order statuses, minimization of order error and backorders, accurate and timely requirement relay, and enhanced response to delays and stock outs. A robust logistics information system enables forecasting techniques based on frequency and intensity of past disasters and help limit the unpredictability experienced in humanitarian missions. The management of information during a crisis is the single greatest determinant of success.

**Resource Management**

The fundamental purpose of a logistics network is to procure resources such as manpower, supplies, and equipment and move them to a point of need. Inventory exists to secure efficiencies in transportation through batch discounts or to make use of existing transportation schedules, provide safety stock to guard against unpredictable demand, hold stock to conserve storage space at later supply points, and build up stock in anticipation of a predicted future need.

**Transportation Management**

Management of the distribution function should be an integral part of system management. The activities of each function must be closely tied with the function downstream to avoid delays at handoff points in the logistics network. The operations must be physically and conceptually compatible.

**Training and Education**

Changes in organizational process may require ensuring employees have the following enablers:

* Specific skills, knowledge, and attitudes.
* Natural strength, mental, and emotional capacity.
* Motivation to succeed.
* Information, including equipment and instructions needed to perform a job.
* Tools and settings, including equipment, physical space and an appropriate social environment to do the job.
* Incentives, including compensation, recognition, praise, and rewards.

Granville notes that organizational factors must also be incorporated such as information on strategies, goals, and performance criteria, reinforcement and reward programs, and integrated personnel involvement to help close organizational gaps.

* 1. **Logistics Skills for Humanitarian Logisticians**

Logistics skills have been described in terms of a T-shaped model that combines the soft skills of management with functional logistics skills. Within this, four groups of skills can be distinguished: general management skills, problem-solving skills, interpersonal (people management) skills and functional logistics skills.Understanding the skill sets needed for humanitarian logisticians may, therefore, ultimately contribute to an improved logistics performance for humanitarian organizations.

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Figure 1.3 The T-shaped models of logistics skills

**1.5 Benchmarking in Humanitarian Logistics**

Benchmarking is an analytical tool which is often used to determine whether a company’s competency of value chain activities are strongly competitive compared to other rivals so that it can be confident to winning in the marketplace.

Benchmarking includes measuring costs of value chain activities in an industry to formulate “best practice” among competitive firms with the views of learning or improving on those best practices. Benchmarking can make a firm to take action to improve its competitiveness and win a good position by identifying value chain activities where rival firms have comparative strengths in cost, service, operation and reputation. It can be typically measured by quality, time and cost. Through learning the benchmark company, we can make improvements which help to do things better, faster, and cheaper. The most important part of benchmarking is to gain access to other company’s value chain activities with associated costs. Benchmarking needs to compare the process of management or results with the best firm in this industry, think about how they perform it, how to compete with them. Organizations evaluate various aspects of their processes in relation to best practice companies' processes, usually within a peer group defined for the purposes of comparison. As an organization, benchmarking allows to develop plans in order to make improvements or adapt specific best practices, usually with the aim of increasing some aspect of performance.

**1.6 Performance Measurement and KPIs in Humanitarian Logistics**

Performance measurement in humanitarian logistics requires a fundamental definition of humanitarian performance. Humanitarian performance is the effective collective performance of a complex system of international, national and locally-based organizations, which work to save lives, alleviate suffering and maintain human dignity both during and in the aftermath of manmade crises and natural disasters, as well working to prevent and strengthen preparedness for the occurrence of such situations.

In addition effective performance means undertaking work in ways that are consistent with humanitarian principles, mobilizing and deploying sufficient financial, material and human resources in ways that are relevant, well-managed, accountable, impartial, durable and ensure good quality. The definition gives an impression that measuring performance with a humanitarian focus is more than collecting indicators or metrics, such as the mentioned key performance indicators or logistics performance indicators. The definition above refers to a complex system which includes several organizations and actors.

The necessity is given to consider connections and relationships across logistical processes and the whole supply chain. In addition performance management should not only focus on the end of the supply chain but also on former processes, because the performances of these processes influence the overall performance as well.

**The seven areas of performance are:**

* Efficiency of the clearance process by customs and other border agencies.
* Quality of transport and information technology infrastructure for logistics.
* Ease and affordability of arranging international shipments.
* Competence of the local logistics industry (e.g. transport operators, customs brokers);
* Ability to track and trace international shipments;
* Domestic logistics costs (e.g., local transportation, terminal handling, warehousing) and timeliness of shipments in reaching destination.

In general, humanitarian relief organizations have focused on “getting the job done” and have put little effort into performance measurement other than reporting to donors on the amount of relief and usage of funds for a given relief operations. The transformation of logistics from a peripheral function to a strategic one in the private sector can be traced back to the time when logisticians began to be able to measure and communicate their value. The Plan-Do-Check-Act improvement process that is commonly used in the private sector could be quite useful when applied to humanitarian logistics.

Since aid agencies execute their work as a series of projects (operations), performance measurement best practices from corporations that also operate in project-based environments could be examined as starting points for developing performance measurement at aid agencies. In any case, work must be done to create measurement across relief projects (operations).

The aims and goals are also a central content of “Key Performance Indicators” (KPIs), which focuses solely on performance measurement in humanitarian logistics. A disaster relief operation involves trade-offs of speed, cost and accuracy with regard to the type of goods that are delivered and their quantities. Balancing these trade-offs requires a means of measuring supply chain performance. Four indicators have been developed as key performance indicators which measure logistic performance:

1. **Appeal Coverage:** This indicator is comprised of two specific metrics: 1) percent of appeal coverage and 2) percent of items delivered. The first metric is the quantity of itemsthat have been pledged by donors out of the total number of items requested for the operation.Its purpose is to indicate how well and how quickly the organization is finding pledges for therequested items. The second metric is the percentage of items that have actually been delivered on-site out of the total number of items requested for the operation. Together, these two metrics indicate how well the organization is meeting its appeal for an operation in terms of both finding donors and delivering items.

**2. Donation-to-Delivery Time:** This indicator is a measure of how long it takes for an item to be delivered to the destination country after a donor has pledged to donate it. Both the mean and median number of days are reported on the scorecard, which is a practice used in the U.S army’s performance measurement system. These two metrics help gauge both the average and the consistency of the delivery lead times.

**3. Financial Efficiency:** Three metrics comprise the indicator of financial efficiency. The first two metrics use two methods (one relative and one absolute) to compare the budgeted prices to the actual prices paid for items delivered in the operation.

The third financial efficiency metric incorporates the transportation cost of delivering the goods to the beneficiaries. This metric is expressed as a ratio of the total transportation costs incurred over the total costs for delivered items at a point in time. The value of this ratio should decrease over time, as less expensive transport methods are used after the initial delivery phase and as more items are delivered on-site.

**4. Assessment Accuracy:** How quickly donations are pledged and goods are delivered to beneficiaries relies on how accurately the field personnel assessed the needs of the population affected after a disaster. Assessment accuracy therefore indicates how much the operation’s final budget changed over time from the original budget.

**Chapter Two**

**Logistics and Humanitarianisms**

**2.1 An Overview of Humanitarianism**

Humanitarianism refers to the efforts madeby organizations and governmentsto alleviate mass suffering after major natural catastrophes and to aid populations caught in war or civil strife. The Red Cross adopted in 1965, four fundamental principles which became the rule-book of humanitarian action: **humanity, impartiality, neutrality**and **independence**. The main characteristic of the Red Cross and of humanitarianism more generally was supposed to be, as these principles indicate, its non-political character and its neutrality towards the characters of wars and natural disasters.

The move beyond the aims of saving lives and reducing suffering to the more muscular recent humanitarianism has two strands. The first grew out of conflict situations. It extended involvement from the provision of immediate assistance to victims to a commitment to solidarity and advocacy and a concern for the long-term protection and security of groups at risk. The second strand, which deals with national catastrophes such as famines, droughts or the recent tsunami, expressed an interest in the long-term development of poor countries beyond the failing aid policies of governments. This broader and deeper humanitarianism was obliged to make strategic choices about aims to be prioritized and groups to be assisted.

**2.2 Humanitarianism Space**

The notion of humanitarian space is invariably linked with the humanitarian principles: humanity, impartiality, independence and neutrality on which humanitarian action is based. There is no commonly accepted definition of humanitarian space but we can define humanitarianism space from four points of view:

**Concern for humanity** is the overriding imperative for humanitarian action, the aim to assist every person in need without discrimination, perusing no other interest, in respect for human dignity. This implies that humanitarian assistance comprises more than mere distribution of relief items, aid agencies have a responsibility to act impartially and solely in the interest of the victims.

**Impartiality** of aid and of the organization is the fundamental principle guaranteeing an approach that is a true reflection of this humanity assisting people because they are in acute danger, irrespective of their being part of any social, political, ethnic or other group. It includes ensuring that the most needy have priority, and aid is given according to need only. In short it is the provision of humanitarian assistance without discrimination among recipients and guided solely by needs, with priority given to the most urgent cases of distress.

**Independence** of any political, military or economic power is the essential condition to ensureimpartiality of assistance. Independence of the aid organization is also vital for assuming the role of witness when confronted with massive violations of humanitarian law, human rights or fundamental principles- one important protection element for populations in danger. Independence is first of all a state of mind, the insistence on the responsibility towards people in danger as an absolute priority. This implies independence from political influence when formulating priorities, strategies and programs.

**Neutrality**: the provision of humanitarian assistance without engaging in hostilities or taking sides in controversies of a political, religious or ideological nature. Referring to aid agencies responsibility to act in the interest of victims beyond distribution of relief items, humanitarian action includes witnessing and advocacy which in extreme situations may be the only way left to act.

**2.3 Conflict Connection**

It is now widely argued that humanitarian action can exacerbate conflicts by affecting the capacities of belligerents to persist in violent behavior. Humanitarian assistance brings additional scarce resources into societies experiencing social change, where the process of change itself often involves conflict. Local actors seek to influence the distribution of these resources to strengthen their own position and to weaken that of their adversaries. The activities of humanitarian and developmental actors while perhaps being sound from the vantage point of mitigating suffering or meeting basic needs and encouraging sustainable growth may also exacerbate tensions between communities.

Despite the confident quality of much criticism of humanitarian action’s impact on conflict, conclusions regarding the impact must be tentative. Moreover, it is possible that humanitarian action that prolongs war could have redeeming features. Adam Roberts has pointed out, a victim of aggression might be assisted in sustaining its resistance where the alternative is a sudden collapse of a party to a civil war followed by disastrous humanitarian consequences.

The impacts of humanitarian action on conflict may occur during the phase of active hostilities or after violent conflict has been concluded by victory.

**2.4 Humanitarian Logistics in Disaster Relief Operations**

Humanitarian logistics has received increasing interest both from logistics academics as well as practitioners. Humanitarian logistics is an umbrella term for a mixed array of operations. It covers disaster relief as well as continuous support for developing regions. Unfortunately disaster relief will continue to expand market, as it is forecasted that over the next 50 years, both natural and man-made disasters will increase five-fold. The following section will explore the concept of humanitarian logistics and disaster in theoretical base and identify phases in disaster relief operations and humanitarian logistic environment.

**A hazard** is a threatening event or probability of occurrence of a potentially damaging phenomenon within a given time period and area. It can be both natural and human-made.

**Natural:** naturally occurring physical phenomena caused either by rapid or slow onset events which can be geophysical, hydrological, climate logical, meteorological or biological (earthquakes, landslides, tsunamis, volcanic activity, avalanches, floods, extreme temperatures, droughts, wildfires, cyclones, storm/wave surges, disease epidemics, animal plagues, etc.).

**Human-made or technological**: events caused by humans and which occur in (or close to) human settlements, such as complex emergencies/conflicts, famine, displaced populations, industrial accidents (toxic dumps or radioactive escapes), catastrophic transport accidents, etc. In brief, **“Hazard**” refers to the natural event, and “**vulnerability**” to the susceptibility of a population or system (e.g., a hospital, water supply and sewage system, or aspects of infrastructure) to the effects of the hazard. The probability that a particular system or population will be affected by hazards is known as the **“risk”.** Hence, risk is a function of the vulnerability and the hazard, and is expressed as follows: Risk = Vulnerability x Hazard

**An emergency** is a situation that poses an immediate risk to health, life, property and/or environment.

**A disaster** is the disruption of the normal functioning of a system or community, which causes a strong impact on people, structures and environment, and goes beyond the local capacity of response. Catastrophe is another term used in disaster management. Usually a catastrophe is considered an extremely large-scale disaster.

**2.5 Disasters General Aspects**

Usually, the term ‘‘disaster’’ refers to a ‘‘disruption that physically affects a system as a whole and threatens its priorities and goals’’. With respect to cause, it is possible to distinguish between a natural and a man-made disaster; with respect to predictability and speed of occurrence, it is possible to distinguish between a sudden-onset and a slow-onset disaster. Taking into account also the different impact in terms of required logistic effort (from higher to lower), it is possible to identify four types of disaster (Fig. 2.1):



* **Calamities**, characterized by natural causes and sudden-onset occurrences (e.g., earthquakes, hurricanes, tornadoes);
* **Destructive actions**, characterized by man-made causes and sudden-onset occurrences (e.g., terrorist attacks, coups d’etat, industrial accidents);
* **Plagues**, characterized by natural causes and slow-onset occurrence (e.g. famines, droughts, poverty);
* **Crises,** characterized by man-made causes and slow-onsets occurrence (e.g. political and refugee crises).

Calamities and destructive actions are disasters that demand a higher logistic effort in terms of knowledge and cost because sudden-onset occurrences require a very fast response in devastated areas. The four categories may be interlinked: a calamity (such as an earthquake) may cause plagues (such as an epidemic disease) and crises (such as an economic crisis). Different types of disasters need to be managed in different ways: the aid provided to assist in a region’s development is distinct from that given to deal with famine and drought; running refugee camps is very different to providing the kind of aid that is needed after a sudden-onset natural disaster or a nuclear accident. Humanitarian efforts are organized along two broad lines.

* + Disaster relief;
  + Continuous aid work.

Ordinarily, disaster relief deals with calamities, destructive actions, and plagues. Continuous aid work is mainly required in the case of plagues and crises.

Logistics is the most important element in any disaster relief effort, and it is the one that makes the difference between a successful and a failed operation. But it is also the most expensive part of any disaster relief: it has been estimated that logistics accounts for about 80 % of the total costs in disaster relief.Thus, proper investment in logistics in disaster relief provides the main opportunity to develop and implement effective and efficient use of resources in humanitarian operations. Humanitarian organizations are therefore under greater scrutiny to monitor the impact of aid and the arrangement of their entire operations; they have to prove to donors, who are pledging millions in aid and goods, that they are really reaching the ones in need.

The following aspects should be taken into account when considering the nature of a disaster:

1. There is a correlation between the type of disaster and its impact on health, particularly the occurrence of injuries. For instance, earth-quakes cause many traumas that demand medical attention, while floods tend to produce relatively few injuries;

2. Some of a disaster’s effects do not have an immediate impact on public health, but pose a potential threat. Population displacements and environmental changes may increase the risk of spread incommunicable diseases. In general, though, epidemics are not caused by natural disasters;

3. Immediate and potential health hazards in the aftermath of a disaster seldom materialize simultaneously; they tend to strike at different times, and with variable intensity within the affected area.

4. After a disaster, the need for food, clothing, shelter, and primary health care is rarely absolute; even the displaced often have the resources to satisfy some of their own basic needs. Moreover, it is common for the victims of a disaster to recover quickly from the initial shock and participate spontaneously in search and rescue efforts and other relief initiatives, such as the storage and distribution of emergency supplies;

5. Wars and civil conflicts generate a particular set of health problems and operational obstacles. Overcoming them requires dealing with many political, social, ethnic and geographical issues.

Effective humanitarian relief management is based on anticipating problems and identifying them as they arise, and providing specific supplies at the right time where they are most needed.

**2.6 Main Effects of Disasters**

The various effects of disasters on the population and its surroundings generate different kinds of needs and require different approaches to meet those needs. It is therefore important to have a general sense of what these effects are, and which systems are most commonly affected. However, experience shows that the effects in question cannot be taken as absolutes, since the impact and form a disaster takes depends on the specifics of the affected region. Bearing this in mind, the following is an overview of some basic characteristics of these effects.

**Social Reactions**

The behavior of disaster victims rarely explodes into general panic or sinks into stunned apathy. After the initial shock, people tend to start acting positively to meet well-defined personal goals, leading to an increase in individual activities that, in spite of being spontaneous, quickly self-organize into collective endeavors. Earthquake survivors, for instance, are usually the first to engage in search and rescue efforts, often within minutes of the impact; in a matter of hours, self-organized groups have already assigned themselves specific tasks that play a key role in relief and recovery.

**Communicable Diseases**

Natural disasters do not cause massive outbreaks of infectious diseases, although in some circumstances they may increase the odds of their spreading. In the short term, the increase in morbidity is frequently the result of fecal contamination of drinking water and food, causing gastrointestinal diseases. The risk of epidemic outbreaks of communicable diseases is proportional to the density and displacement of the population, since these factors degrade living conditions and substantially increase the demand for drinking water and food, which tend to be scarce in such circumstances.In the immediate aftermath of a disaster, the risk of contamination grows as in the case of refugee camps as existing sanitation services such as water supply and sewerage systems break down and it becomes impossible to restore public health programs.

**Population Displacements**

When large, spontaneous or organized population movements occur, an urgent need to provide humanitarian assistance is created. People may move to urban areas where public services cannot cope, and the result may be an increase in morbidity and mortality. If much of the housing has been destroyed, large population movements may occur within urban areas as people seek shelter with relatives and friends.

**Food and Nutrition**

Food shortages in the immediate after effects may arise in two ways. Food stock destruction within the disaster area may reduce the absolute amount of food available, or disruption of distribution systems may curtail access to food, even if there is no absolute shortage. Generalized food shortages severe enough to cause nutritional problems do not occur after earthquakes.

Flooding and sea surges often damage household food stocks and crops, disrupt distribution, and cause major local shortages. In extended droughts, such as those occurring in Africa or in complex disasters, the homeless and refugees may be completely dependent on outside sources for food supplies for varying periods of time. Depending on the nutritional condition of these populations, especially of more vulnerable groups such as pregnant or lactating women, children, and the elderly, it may be necessary to institute emergency feeding programs.

**Water Supply and Sanitation**

Drinking water supply and sewerage systems are particularly vulnerable to natural hazards and the disruptions that occur in them pose a serious health risk. Deficiencies in established amounts and quality of potable water and difficulties in the disposal of excreta and other wastes result in the deterioration of sanitation, contributing to conditions favorable to the spread of enteric and other diseases.

**Mental Health**

Anxiety, neuroses, and depression are not major, acute public health problems immediately following disasters, and family and neighbors in rural or traditional societies can deal with them temporarily. A group at high risk, however, seems to be the humanitarian volunteers or workers themselves.

**Damage to the Health Infrastructure**

Natural disasters can cause serious damage to health facilities and water supply and sewage systems, having a direct impact on the health of the population dependent on these services. In the case of structurally unsafe hospitals and health centers, natural disasters jeopardize the lives of occupants of the buildings, and limit the capacity to provide health services to disaster victims.

**2.7 Logistics and Emergencies**

Although the word "logistics" applied originally to the military procedures for the procurement, maintenance, and transportation of materiel, facilities, and personnel, it now has practical applications in civilian life. Many commercial enterprises have a logistics department that coordinates, through a logical and sequential series of steps, all aspects related to procurement, transport, maintenance, stock management, and the flow of both material and intangible inputs broadly speaking, all activities considered auxiliary to the production and marketing process.

In emergency relief operations, logistics are required to support the organization and implementation of response operations in order to ensure their timeliness and efficiency. Mobilizing the staff, equipment and goods of humanitarian assistance organizations, the evacuation of the injured or the resettlement of those directly affected by the disaster, requires a logistics system to maximize effectiveness.

**Emergency logistics requires:**

* Delivery of the appropriate supplies in good condition, when and where they are needed.
* A wide range of transport.
* Limited, rapid, and specific deliveries from outside the area.
* A system of prioritizing various relief inputs.
* Storing, staging, and moving bulk commodities.
* Moving people
* Coordination and prioritization of the use of limited and shared transport assets.
* Possible military involvement in logistics support

**Before an emergency logistics may entail**

* Acquiring equipment
* Stockpiling /store supplies
* Designating emergency facilities
* Establishing training facilities
* Establishing mutual aid agreements
* Preparing a resource inventory

**During an emergency logistics may entail**

* Providing utility maps to emergency responders
* Providing material safety data sheets to employees
* Moving backup equipment in place
* Arranging for medical support, food and transportation
* Arranging for shelter facilities
* Providing for backup Power and communications

**Emergency Relief Logistics (ERL) Supply Chain**

Characteristics of **Emergency Relief Logistics (**ERL) Supply Chain:

“The ultimate humanitarian supply chain management has to be able to respond to multiple interventions often on a global scale, as quickly as possible and within a short time frame. **Stakeholders in the ERL supply chain:**

People in

Need

Delivering Agency

Donors and Suppliers

Receipt Agency

* Government \* Government \* Government agency
* Companies \* NGO’s \*Military
* Foundations - Red cross \* Global and local NGO’s

-World Vision \* Local organizations

**Phases, Tasks and Decisions of the Disaster Management Cycle**

In the decision making processes needed in humanitarian logistics for disaster management, the context and the nature of the decisions to be made change over time as we move from the disaster event. Deciding about preventive actions to mitigate the effects of a possible future earthquake is not the same as deciding about the precise actions to undertake just after it strikes.

**Mitigation**: all the middle and long-term actions and decisions aimed to prevent and mitigate the consequences of a future disaster, as long as it is not (known to be) imminent. Typical tasks of this phase are the identification of risk groups and vulnerability patterns and their treatment, or the development of prediction systems and emergency plans and the allocation of resources for them.

* **Preparedness**: all the short-term interventions once the available prediction systems have raised an alarm of an upcoming adverse phenomenon until it finally strikes. This phase also includes some long-term decisions such as inventory prepositioning and network design. ‘‘A successful response to a disaster is not improvised. The better one is prepared the more effective the response.’’
* **Response**: this phase is focused on saving lives and it is characterized by a short duration with high emergency and high uncertainty. It is usually divided into a first response phase, devoted to the rescue, save and urgent medical assistance of injured and affected people (depending on the disaster scenario, it may last around one week from the moment of the disaster event), and a middle-term response phase, devoted to estimate and mitigate the potentially unattended first needs of the affected population as a result of possible damage to life-line infrastructures and resources (shelter, ordinary medical assistance, water and food supply, etc.). In the response stage, coordination and collaboration among all the actors involved in the humanitarian emergency deserve particular attention.Connections to feasible donors, suppliers, NGOs, and other partners are made in the first phase, but they are not activated until the catastrophic event takes place. Then, all the actors involved operate as quickly as possible: at the start, speed-at any cost-is of the essence.



**Fig. 2.2 Agility and leanness in the humanitarian logistics stream**

**Recovery**: this phase is focused on achieving efficiency and it is characterized by its long duration with low emergency and low uncertainty. It refers to all the long term actions and decisions aimed to recuperate the normal functioning of the affected community and the reconstruction of the social fabric, including life-line resources, services and infrastructure, and the necessary improvements in order not to repeat the specific vulnerabilities shown by the affected groups and places.With regard to humanitarian logistics stream, it is interesting that the transition between the stages involves the shift in focus from speed to cost reduction in terms of operational performance. Each stage of the process has a specific objective that can be achieved through the application of two supply chain principles: agility and leanness.

**Agility** is usually defined as the ability to respond to unexpected changes when an unpredictable demand is combined with short lead times. **Leanness** usually refers to doing more and better with less when demand is relatively stable and predictable. Briefly, while agility focuses on effectiveness and speed, leanness focuses on efficiency and cost saving.

In consideration of their specific objectives, agility and leanness may be applied to the stages of humanitarian logistics. In humanitarian supply chains, effectiveness ensures that we save time, and time saved means more lives saved; efficiency ensures that we save costs, and costs saved means more lives helped. The objective of the restoring sub-stage (as part of the response phase) is saving as much time as possible, and it can be achieved through agility. The objective of the reconstruction phase is saving as many costs as possible, and it can be achieved through leanness. It is through preparedness and the immediate response that agility and leanness can be used to design and develop processes and procedures to be performed in the following steps, restore and reconstruction. Similarly, the allocation of resources for first response operations must be taken in to account when designing the mitigation policy.

Besides, the middle-term response stage cannot be successful if it does not enable an adequate recovery process. In this sense the delivery of external aid has to be carefully examined and carried out in order not to destroy the local economy. Furthermore, notice that the recovery and mitigation tasks partially overlap, in such a way that once an affected community has reached a new equilibrium, it has to re-evaluate the possible occurrence of future disasters and thus a new mitigation stage follows the recovery phase. Thus, the disaster management process is a non-stop cycle.



Fig. 2.3 Phases of disaster management cycle

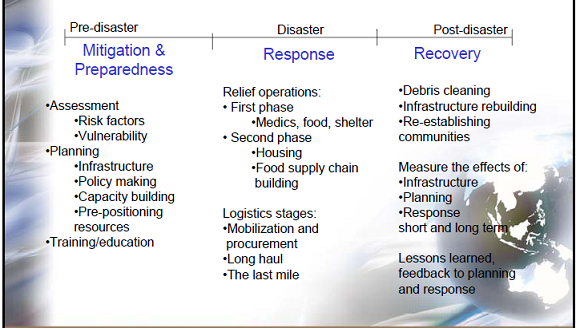


Fig. 2.4 Summary of disaster management phases

**2.8 Logistics Planning and Preparedness**

Logistical activities have to be planned, since adequate preparations are essential to a smooth operation. It is indispensable to renounce the commonly held notion that transport and other arrangements can be improvised, depending on circumstances “in the field” when disaster strikes.

Planning is both necessary and practical, since it is generally possible to foresee the types of disasters that may affect a given location and the needs that such disasters will be likely to engender. In fact, logistics should be an active component of any national emergency response plan, as well as of the individual plans of disaster response organizations and key institutions such as schools and health establishments. Logistics must be closely linked to all other operational activities in the context of responding to a given emergency.

**The Plan**

Planning and anticipation are vital to an effective logistical system. The plan must be based, first of all, on a good working knowledge of the geographical, social, political and physical characteristics of the area where the operations are to take place. Such a plan must not only be well thought out in advance, so that it can run smoothly.The plan must provide clear answers to the following questions:

* Which tasks must be carried out? How do they relate to all the other activities, and what are the correct sequences for carrying them out?
* Who will be responsible for performing such tasks? (Rather than individuals, what must be identified here are organizations or departments.)
* Who will be in charge of the overall coordination of the logistical system?
* What resources are needed? How, when, and where can they be procured?
* What alternative actions can be implemented if the system is somehow disrupted?

**Preparedness**

After these questions have been answered satisfactorily, we must draw up a list of preparatory activities. The more time and effort we invest in such activities, the greater the return in terms of our knowledge of the theater of operations, our weaknesses and those of our partners, eventual needs, and alternative solutions depending on different scenarios.

These activities, which are described below, can be broken down by national regions, depending on the size of the country, beginning with those areas most at risk from natural disasters. Alternatively, organizations may decide on which geographical areas they will focus their attention.Preparedness must also be based on the vulnerability and resource assessments normally carried out to develop a national or regional emergency response plan. We must never forget that logistics has to be a key component of any such plan.

Preparatory activities must include the following:

* **Assessing the vulnerability of key infrastructure**

The goal is to identify the strengths and weaknesses of public works and strategic structures of the country or region- highways, water supply systems, schools, hospitals- as well as alternative actions that may be required should the infrastructure collapse. Specific actions would include:

* Systematically mapping and evaluating national transport infrastructure (ports, airports, highways, railroads, and waterways), taking into account the capacity and potential weaknesses of strategic routes, possible bottlenecks (bridges, ferries), availability of communication resources, and risks to the infrastructure in the event of an emergency.
* Analyzing the historical meteorological records of the country or region to determine the impact that severe weather might have on the capacity of the transport system at different times of the year;
* Regularly monitoring major new construction or changes to existing structures that might cause bottlenecks or the temporary need for rerouting.
* Determining the availability of strategic resources for logistical support- These resources are constantly changing, so they must be reviewed frequently to keep the information as up-to-date as possible. The review must also involve the private sector, the public sector, and national and international nongovernmental organizations.
* Taking stock at the national level of the location and sources of key supplies-including drugs and medical supplies, food, clothing, fuel, and rescue equipment. This inventory must also determine how long it would take for critical supplies to be delivered to their required destinations;
* Analyzing the capacity of the transport system for moving people and supplies-assessing in detail the country’s transport capacity, such as the size of fleets, their type and capacity, location, costs, and availability;
* Assessing potential sites for logistic bases, supply distribution centers, and fuel distribution points-including public and private facilities, large storage complexes, factories, and other facilities that might be adapted to these purposes;
* Assessing the availability of spare parts and repair services-including private and public repair shops;
* Determining the capacity of ports and airports to handle emergency supplies under different scenarios:
* Ports: Examining the capacity of port facilities to handle the arrival, storage, and flow of consignments, including repackaging and distribution. Reviewing with the port authorities the various procedures and formalities for the arrival of emergency consignments, and so on.
* Airports: Determining their capacity, which types of aircraft can land, which services are offered, availability of machinery and equipment for unloading and loading, whether fuel supplies are available, and so on.
* Other transport options: Determining alternative routes and options, such as waterways, in the event of an emergency.
* Reviewing government policies, plans, and preparations-It is very important for international agencies and nongovernmental organizations to know the government’s emergency response policies and plans. All the information compiled and the activities carried out at the planning and preparation stage should serve as the basis for the development of the logistics plan, which must spell out procedures, responsibilities, and timetables for implementation.

**Supply Chain Logistics**

Supply chain logistics in emergency situations, the purpose of which is to "deliver the right supplies, in good condition and the quantities requested, in the right places and at the time they are needed”. The links in this logistics chain are not necessarily sequential or linear; indeed, they are often carried out in parallel. However, they must not be considered as separate activities but integrally, due to their complex interrelationships.

**2.9 Assessing Logistical and Supply Needs**

**2.9.1 The Importance of Needs Assessment**

Assessing logistical and supply needs is crucial to determine as accurately as possible:

* The needs of the population after a disaster;
* Available local capacity and resources;
* Complementary capabilities and resources required for meeting those needs.

Such assessments should be fully integrated into the general needs assessment process that is carried out in a disaster area to determine the type and severity of the damage and the most urgent intervention priorities.The quality of this assessment is very important, since requests for supplies will be based on the disaster situation as identified on the ground.

While assessments are the tool that enables relief managers to identify the affected sectors and the nature of the damage, and to quantify and qualify more precisely the type of assistance required. Needs assessments should make it possible to answer the following questions:

* What are the needs?

1. What are the needs of the population?
2. What are the operational needs?

* What is available capacity?

1. What is the capacity of the local infrastructure?
2. What resources (including human and information resources) are available locally?

* What factors may hinder or facilitate relief efforts?
* What are the social, cultural and environmental characteristics of the potential disaster area that may have a bearing on the effectiveness of the relief efforts?
* Some of the key questions that need to be answered are the following:
* What is needed?
* How much is needed?
* When is it needed?
* Where is it needed?

**Needs of the Population**

Nevertheless, experience shows that some aspects of everyday life are more likely to be affected by disasters, making it possible to foresee the most probable needs for survival.Such aspects include the following:

**Health care:** Most catastrophic events tend to affect public health to a greater or lesser extent, generating additional or urgent needs in this area.

**Availability of water:** It is common for drinking water supply systems to suffer damage or fail to function.

**Availability of food:** Not all events lead to dwindling stocks of food, but people who have lost their homes or belongings will likely require some temporary support in this regard.

**Shelter:** The impact of a disaster might force people to look for temporary shelter until they resolve their housing situation.

**Sanitation:** The generally sudden disruptions of the everyday functioning of a community, as well as the displacement or temporary resettlement of the victims, can cause environmental degradation and imperil health due to a rise in unsanitary conditions.Bearing in mind which kind of disaster we are facing, we can come to preliminary conclusions on what type of assistance will most likely be necessary, and launch an appropriate response in the field until more thorough assessments reveal to us in greater detail the needs that must be met.

**Operational Needs**

All too often, local organizations involved in emergency response do not have the resources to respond effectively to a disaster. It is therefore important to determine what resources an organization has (or is lacking), and what is required for relief operations to be carried out effectively. If logistical planning and preparations have taken place before the event, this will make it easier to determine which resources are available and which are lacking and must be procured elsewhere.

**2.9.2 Assessment of Local Capacity**

By local capacity we mean not only the physical resources available at the site of an emergency, but any factors that may help emergency supply management, such as local knowledge of the terrain or weather patterns, or social capital in the form of community organizations, formal and informal communications channels, and the like.

**Local Infrastructure Capacity**

Since disasters tend to affect life lines, including roads and infrastructure in general, it is essential to carry out a quick inventory of their availability and operational capacity for the mobilization and reception of incoming supplies.

From the point of view of infrastructure, the following issues must be dealt with:

The state of roads, waterways, and other transport infrastructure needed to guarantee the arrival of emergency supplies in the region or country that has been affected.

* The existence and availability of supply storage facilities;
* The existence and availability of means of transport;
* The state and capacity of points of arrival (airports, ports, borders, and so on).
* Are there any restrictions on their use?
* Are changes in the works, such as the expansion of a runway?
* Is there maintenance problem?

**Local Availability of Resources**

One can frequently find the necessary supplies locally, or at least not far from the emergency zone. Part of our assessment, then, must involve identifying the existence and location of such resources. Attention should not be paid only to commercially available goods that need to be purchased; there may also be public, and even private, resources that can eventually be put to use in relief efforts. This applies to resources for the affected population as well those required by relief organizations.

**2.9.3 Factors That May Restrict or Facilitate Relief Efforts**

Many factors may hinder or, alternatively, facilitate relief efforts. For instance, during a complex emergency, or in particular political contexts, national authorities may restrict humanitarian operations and supplies. A government may ban foreign-based relief organizations from entering the disaster or conflict area, or even the country itself. Another may put forward religious, political, or health reasons for preventing the arrival of a given product or material.

On the other hand, some governments may adopt exceptional measures to facilitate the efforts of relief organizations and the arrival of humanitarian assistance into the country or the area where operations are underway. This would include offering priority treatment at customs, lowering or eliminating tariffs and taxes, or making government facilities available to humanitarian operations.

**Other Relevant Issues**

Any other information that may affect supply availability, transport and distribution should also be recorded to assist in decision-making weather forecasts, other events related to the event causing the emergency, or safety and security considerations that must be taken into account regarding the movement and positioning of supplies.

**2.9.4 Social, Environmental and Cultural Features of the Affected Population and Region**

In order to provide the most appropriate and effective assistance to the affected population, it is imperative to identify and understand their social and cultural customs, as well as environmental characteristics of the area they occupy.

This information must be taken into account when making decisions about the type of supplies needed, how they can best be distributed, and how they are likely to be used in the case of clothing, housing, or household items or consumed, when it comes to water, food, and drink.

The following are essential tasks:

* Identifying the population’s dietary habits, including the types of food they will not consume for religious, cultural, or traditional reasons, the kitchen utensils they use for cooking, and any other relevant information that can help determine what kind of assistance to offer and what kind to avoid;
* Identifying local and regional producers before asking for food assistance or negotiating the acquisition of food in other regions;
* Finding out what type of clothes are used, and which ones are not worn due to cultural or environmental reasons;
* Identifying the most common types of housing and construction materials, including the cultural or environmental reasons, if any, for such buildings and building practices;
* Collecting information about the needs and type of assistance considered a priority by the community itself;
* Identifying ethnic or cultural minorities and their specific needs, in order to prevent any form of exclusion.

**CHAPTER THREE**

**HUMANITARIAN COORDINATION**

**3.1 An Overview of Humanitarian Coordination**

The actors who intervene in relief operations are diverse, with different mandates and working methods. Although they all share the desire to help, lack of coordination is common in emergency situations. Disputes between organizations, or the unwillingness to share information and work side by side, can delay the provision of care to disaster victims, lead to duplication of efforts, and waste valuable resources. To prevent this problem, and to maximize available resources and expertise, relief efforts should be launched in a spirit of coordination. This will be possible to the extent that participating organizations know each other, share information, identify and acknowledge their respective strengths, and explore ways of collaborating and supporting each other. Coordination can be defined as the systematic use of policy instruments to deliver humanitarian assistance in a cohesive and effective manner. Such instruments include strategic planning, gathering data and managing information, mobilizing resources and ensuring accountability, orchestrating a functional division of labor, negotiating and maintaining a serviceable framework with host political authorities and providing leadership. In short, the term coordination describes the relationships and interactions among different actors operating within the relief environment.

* 1. **The Need for Coordination**

Coordination consists of a process of gathering and sharing information, and planning together in pursuit of shared and agreed goals. The success of this process is underpinned by and involves developing and maintaining transparent and effective partnerships with a diversity of stakeholders, including the cluster/sector lead, on-site authorities, service providers, the camp population and the host community.

Some of the preconditions for successful partnerships, and hence for successful coordination include:

**•** A commitment to coordinate

**•** An inclusive and proactive attitude

**•** Active listening skills

**•** An appreciation of diversity and interpersonal skills and styles

**•** A commitment to process as well as product

**•** The ability to trust

**•** A willingness and ability to establish consensus

**•** Leadership capacity and the acceptance of leadership

**•** Cultural sensitivity

**3.3 Types and Levels of Coordination**

Coordination as a concept has longer traditions within a number of disciplines including organization, strategy, marketing and logistics. Different typologies have been suggested, for the most relating to vertical and horizontal coordination as in figure 3.1 below. By horizontal cooperation is meant concerted practices between companies operating at the same levels in the market. It concerns collaboration with competitors, internally and with non- competitors, e.g. sharing manufacturing capacity and is also defined as when two or more unrelated or competing organizations cooperate to share their private information or resources such as joint distribution centers.

Numerous studies on vertical coordination have been reported. Taking place across tiers in the supply chain so that the enterprise can improve performance and customer demands are fulfilled. Vertical coordination is defined as when two or more organizations such as the manufacturer, the distributor, the carrier and the retailer share their responsibilities, resources and performance information to serve relatively similar end customers. The question of what to coordinate has been answered in several ways. It is essential to coordinate flows which are of a physical, informational and financial character. Coordination of processes and activities, actors and technologies and systems are all ways of achieving efficiency. This covers what types of issues to coordinate in a broad sense. Crucially, this type of coordination can be carried out in a vertical or a horizontal sense.

Finally, the coordination can be carried out at an operational (day- to- day), tactical (medium level) or strategic level (long- tem) to further describe the level of engagement. Combining the two dimensions of coordination gives us a useful matrix for arranging both different types of coordination and coordination observed in a particular situation.

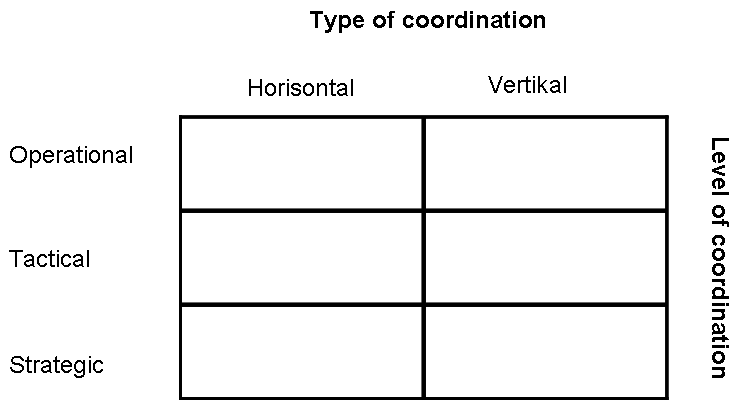


Fig. 3.1: Types and levels of coordination

**3.4 Coordination Structures - The Actors**

Minor emergencies are generally handled by specialized national or local agencies, perhaps with the collaboration of international organizations present in the country. However, when an event is catastrophic, other sectors of the nation and the international community must often mobilize to provide relief. The increase in the arrival of emergency supplies and response personnel places an extra burden on the efforts to coordinate relief on the ground. It is crucial to establish effective working relationships with the following stakeholders:

 The local population: The residents of the affected area are the first to engage in search and rescue operations, and often among the first to share vital supplies such as food and water with victims of the disaster.

 Neighboring communities or regions: It is also common for neighboring communities or even countries to respond quickly with donations and the sending of volunteers.

 The national and local governments: A significant adverse event generally prompts the intervention, not only of the national disaster response agency, but of other government bodies as well.

 Foreign governments: The governments of other nations intervene through their embassies and their bilateral cooperation agencies. This assistance, which occurs between the two governments, may include financial and in-kind donations, the financing of rehabilitation and reconstruction projects, or the sending of consultants and experts.

 Multilateral agencies: These are mostly intergovernmental agencies, such as those of the United Nations, whose mandate includes disaster reduction or humanitarian assistance. Generally, their support focuses on technical assistance related to their own field of expertise, sending consultants and experts, or supporting the allocation of resources to help the affected country in rehabilitation and reconstruction efforts.

 Nongovernmental Organizations (NGOs): National and international, religious or social, their capabilities, experience and resources cover a wide spectrum. Some international NGOs specialize in emergency management, and their skills and resources are tailored for disaster situations. The private sector: National or transnational in scope, for-profit corporations can get involved at different levels, from donations to providing specialized services in areas such as transportation, warehouse rentals, or the sale or in-kind donation of equipment, food and drugs.

 Specialized Institutions: These can provide highly valuable technical assistance in areas such as vulnerability assessments and risk reduction, needs assessment, and more concrete efforts such as water purification or medical supply management.

 Military Institutions: A country’s armed forces have the experience and equipment to support logistical operations. They have their own means of transport, including sophisticated aircraft such as helicopters, highly flexible and deployable human resources, and essential skills in crucial fields such as rapid road repair and bridge construction. When the armed forces are taking active part in a conflict, however, their involvement in relief operations must be closely reviewed and might not be advisable for security reasons

**3.5 Coordination Mechanisms and Agreements**

The term ‘coordination mechanisms’ simply means the methods the organization employ to coordinate. It is a vehicle for sharing information or a platform for joint planning. Coordination mechanisms are the way in which coordination results are achieved. In any camp response a variety of coordination mechanisms should be used to coordinate with different stakeholders. A number of mechanisms have been developed through which coordination may be facilitated and enhanced. One such mechanism is the Global Humanitarian Platform (GHP), which is a forum aiming to bring together the three main networks within the humanitarian community: NGOs, the Red Cross and Red Crescent Movement, and the United Nations. It is premised on the notion that no single humanitarian agency can cover all humanitarian needs and that collaboration is, therefore, not an option, but a necessity. The forum aims to facilitate enhanced coordination within and among these groups as well as to maximize complementarily of organizations’ different mandates and mission statements. Another mechanism for coordination is the Cluster Approach. It was designed to address identified gaps in response as well as to enhance the quality and efficacy of response through improved predictability and accountability. This approach has at its core efforts to ensure sufficient global capacity, predictable leadership, strengthened accountability and improved strategic field-level coordination and prioritization.

It is based on the premise of partnerships between UN agencies, the International Red Cross and Red Crescent Movement, international organizations and NGOs. Adopting a dual approach, the Cluster model looks to the global level at which to address objectives of preparedness, standards, tools and capacity-building. At the country level, the aims is to ensure coherent and effective response through strategic mobilization of key actors, while encouraging improved assessment, planning, delivery and monitoring of assistance. Funding resources play a key role in coordination in so far as they contribute to the streamlining and predictability of funding. One such example is the Common Fund mechanism, which has improved the process by which humanitarian response is planned, prioritized, and coordinated. Additional to funding resources, professional tools which may be of assistance in enhancing coordination have been developed by a number of actors. One such instrument is the diagnostic tool, which has as one of its aims to assist the UN Humanitarian Country Teams in determining what support will be needed to effectively implement the Cluster Approach, as well as how to determine a baseline against which to measure progress. Such a checklist may also be more broadly useful in detailing important considerations in the development of effective coordination strategies. Disaster response organizations’ primary goal is to provide relief to those in need. Depending on its nature and history, each organization tends to specialize, to a greater or lesser extent, in a given work area. It is also evident that no agency, on its own, can handle all the logistical problems attending a natural catastrophe. The way in which international donors transfer resources for humanitarian assistance has led to the emergence of many new relief organizations and the entrance of existing institutions into this field, resulting in intense competition among these organizations for external resources. In spite of this competition, it is essential to develop mutual support and cooperation agreements, so that humanitarian assistance can be delivered promptly and relief efforts can complement each other. These agreements must be both specific and feasible, so as not to create false expectations.

**3.6 Potential Obstacles to Humanitarian Coordination**

Coordination is a notoriously difficult aspect of humanitarian interventions. There is a saying that ‘everyone wants coordination but no one wants to be coordinated’. This saying reflects the dilemmas of a situation where the humanitarian actors acknowledges the positive effects that increased effective coordination would have on the people that needs assistance, while at the same time these are also actors that must ensure the visibility and position of the organization they are working for. This has often led to a situation where the different humanitarian actors indulge in a fight for power and position instead of focusing on the actual positive output of their operations.

The main coordination challenges in complex emergencies are:

 Lack of authority to coordinate or command hampers efficient decision making. The coordinating bodies can only try to raise motivation for cooperation among actors over whom they have no formal authority.

 A large amount of humanitarian actors hampers coordination and joint efforts, because of the diverging affiliations, mandates and agendas. This can lead to misunderstandings of the actions of other organizations, but also to outright competition between the different organizations.

 The political aspects of complex emergencies

Humanitarian coordination does not happen in a power- vacuum, and the different power brokers may want to influence the humanitarian operations in certain directions that make overall coordination difficult.

 Demands from donors, often national governments, which have political agendas with the aid given. Particularly when confronted with an acute emergency, the humanitarian actors put a premium on speed. There is the fear that the coordination efforts will cause delays. This again feeds into the argument that power of command is required before effective coordination can emerge, because there is no time in an emergency for long meetings trying to establish consensus between autonomous actors.

 Number and diversity of actors

While each of the actors involved in disaster response has the same general goal: to help people and alleviate suffering, their primary motives, missions and operating constraints may differ. Differences in geographical, cultural and organizational policies may create additional barriers. E v e n when organizations intend to coordinate, communication chall e n g e s m a y h i n d e r coordin at ion . F o r inst ance , coo rdinat ion between local and foreign organizations m a y b e impeded by language; coordination meetings held in English inadvertently exclude those NGOs without English-speaking staff. An important characteristic of the relief environment is that it is unregula ted; there is usually no single organization with the a u t h o r i t y t o c a u s e o t h e r a c t o r s t o e n g a g e i n a p a r t i c u l a r coordination activity. Typically, the governments of the affected countries are responsible for the conduct of disaster relief operations in their countries, and other actors are obliged to abide by the laws of the country in which they are operating.

Unfortunately, governments may lack the necessary experience and knowledge required to manage emergencies effectively, especially when the effects of disasters are overwhelming. In situations in which the government is either non-functional or dysfunctional, the roles of relief actors are often unclear.

 Unpredictability

There are many sources of unpredictability in disaster relief that may affect coordination efforts. First, by their very nature, the l o cat io n , timing , a n d inte ns it y o f sudden - onset disasters are typically unknown a priori. Second, the population characteristics and pre-existing regional infrastructure (communications, transpor tat i o n ) in m a n y d i s a s t e r - p r o n e a r e a s m a y n o t b e r e a d i l y available, and the extent of post disaster infrastructure damage may not be predictable in advance. Finally, the political environment and post-disaster funding levels are unpredictable. Given these uncertainti es, it may be challenging to establish coordination mechanisms a priori with the ﬂexibility and efficiency to be effectively implemented in any given disaster situation.

 Resource scarcity/oversupply

Matching demand to supply is a particular problem in pre and post-disaster relief activities. This is due to uncertainties associated with the disasters themselves (location, timing, intensity) and a lack of supporting resources (ﬁnancial, human, technological, informational), both of which can create coordination difficulties. The relief workforce also commonly contains short term volunteers or temporary employees, neither of which may possess adequate experience to facilitate coordination activities during a disaster relief operation. In some cases, there may be insufficient relief supplies and/or logistical resources to meet demand. In the absence of functioning coordination mechanisms, relief organizations may compete for the same scarce resources, which may prove harmful to future coordination efforts. The relief chain may also be challenged by the opposite problem: oversupply. Indeed, the volume of relief supplies and information ﬂowing into a region can be enormous. Sometimes in quantities greater than necessary, and sometimes inappropriate and unusable. Unsolicited supplies arriving to a region create difficulties, since they consume staff time, logistical resources, and congest the system.

 Cost of coordination

Coordination of initiatives cost time and money for relief organizations. At the strategic and tactical levels, coordination costs may also include staff salaries and travel costs for coordination meetings held during the pre disaster period. In the ﬁeld (operational level), resource capacities of smaller relief organizations may not allow them to allocate personnel to attend coordination meetings while simultaneously providing relief.

**3.7 Motivations for coordination**

Acknowledging all the above listed obstacles, what could motivate a humanitarian organization to try and overcome them? A common answer would be that the coordination must add value to the activities of the organization. This answer, however, still does not analyze what humanitarian actors perceive as valuable additions. For this analysis, a deeper understanding of the humanitarian actors’ motivations is needed. On the one hand humanitarian organizations are said to be motivated by altruism rather than self interest, all working towards supposedly similar and coherent goals. On the other hand, others emphasize that cooperation between NGOs is difficult, because they are independent agencies which defend their autonomy jealously and compete for funds and contracts. It is therefore useful to make a theoretical distinction between the humanitarian organizations as a value based co-operator on one hand, and on the other a competitive actor in a market for humanitarian relief. The value based humanitarian organization works to achieve goals shared by the humanitarian community, and should involve in coordination as long as the cost required is less than the overall benefits to the humanitarian community in reaching their shared goals.

The competitive actor, on the other hand, will involve in coordination activities only if the benefits in the form of better achievement of own goals surpasses the cost of involving in coordination activities. This divide does not imply that the arena existing of competitive actors necessarily is less efficient in meeting the needs of the beneficiaries. The humanitarian market can be conceptualized as a cartel of good intentions, where the members of the cartel rarely compete for the same resources and rather involve in ‘spin control’ in order to collaboratively project an image of humanitarian aid as a good investment in order to expand the overall market. The extent to which actors in the humanitarian community perceive that they have a common interest with other agencies will distinctly impact the actors’ motivation to coordinate. In any given humanitarian operation, the organizations can probably be placed somewhere along a continuum from the competitive ‘lone rider’ - coordinating only when the benefits for itself (own members and employees) outweighs cost, and the value based team player that seeks to take larger societal goals into account when deciding how and to what extent to coordinate with other organizations. Humanitarian organizations are thus driven simultaneously by the need to maintain the base of its own existence through funding, and the goal of providing humanitarian relief where needed.

**3.8 Requests for International Humanitarian Assistance**

 Calls on the International Community

When the impact of a disaster is such that it overwhelms national response capacity, a call for help soon goes out to the international community. This is the responsibility of the national government, and the requests for assistance are usually channeled by embassies and the country offices of the various UN bodies. The crucial point, again, is not to make such requests until needs have been assessed and it is clear that they cannot be met with local resources. Only then can international solidarity provide emergency relief that is truly useful.

As part of disaster preparedness efforts, the foreign ministries of some countries regrettably few have issued guidelines to their diplomatic representatives abroad in the event of a disaster. These guidelines are meant to help the diplomats inform the authorities, potential donors, and the public about the impact of the event, the needs of the victims, and the type of assistance that would prove most valuable in the circumstances, based on official reports issued by those responsible for disaster response.

Ideally, this should help to identify and screen aid offers, reducing the number of inappropriate donations and helping to make sure that useful supplies arrive when and where they are most needed. Similarly, the country offices of international organizations may call on headquarters or other counterparts in the region to provide humanitarian assistance. Normally, these organizations have their own procedures for mobilizing aid.

 Information Exchange and Coordination with International Organizations

International organizations, whether they have a country office or send delegations when a disaster occurs, are excellent vehicles for identifying sources of appropriate assistance, procuring the aid and channeling it to the victims. It is therefore vital to establish mechanisms to keep them informed of the evolution of the situation in the field of operations and the needs as they are identified.

 Instructions for Donors

Guiding potential donors, not just about the type of assistance needed, but also about the most appropriate way to make it reach its destination, is extremely important. International organizations with ample experience in disaster relief claim that there are some supplies and forms of assistance that should never be the subject of an open, massive appeal.

 Used clothing and footwear: Generally, needs of this sort are met locally. In any case, for reasons of hygiene and convenience, it is best to obtain such items locally;

 Pharmaceutical products: The arrival of drugs of every sort in all kinds of presentations, quantities, and packaging only serves to distract already overstretched human and logistical resources, since the drugs need to be classified, labeled and, often, discarded or destroyed;

 Food: The sending of food of any sort should not be encouraged, at least not as a given. In the event that food should be needed, donors should be advised to send non-perishable goods that can be adapted to local consumption patterns and correctly labeled;

 Blood and blood derivatives: Once again, local donations are usually enough to satisfy local needs. Moreover, the arrival of such products from abroad causes more difficulties than benefits, from the health and logistical point of view;

 Medical and paramedical personnel: Generally, national health services can cope with the need for medical care during an emergency. Should additional human resources be needed, it is always better for them to come from another part of the country than from abroad;

 Other specialized personnel: Generally, national relief organizations have enough staff to meet the basic requirements of an emergency. Any need for specialized assistance should be handled directly through the relevant organizations, to prevent a rush of unneeded" experts";

 Field hospitals: These are not recommended; by the time they have been set up and are ready to operate, local health services and facilities will probably have been restored;

 Medical equipment, new or old: Medical equipment is rarely needed or, if necessary, it is generally highly specific, to be dealt with by asking specialized organizations, not by broadcasting a general appeal;

 Tents: New trends in disaster response discourage their use. Should they be needed, it is always better to exhaust the possibilities of local procurement, preventing the technical difficulties and cost of having them sent in from abroad. It should be stressed that in very specific cases it might be necessary to request some material or aid of the kind listed above. However, these cases should be addressed by asking a specialized institution and providing all the specifications of the supplies needed. Such items should not be included in lists used for general appeals. The best approach is to ask the national and international community only for those supplies and assistance that will be unquestionably useful as determined by an assessment of real needs. Whenever possible, cash donations are preferable since they can be used to purchase supplies and services locally, saving the time and resources required for shipping and storing supplies. Another key consideration is how supplies are sent.

Guidelines for donors should take into account the following:

 Consignments should be sorted by product before they are dispatched.

Donors must be asked not to mix different products in the same package;

 Consignments should be classified in advance, and packed according to standard categories;

 Consignments should be labeled and identified, ideally in the local language, or else in a language that can be easily understood or translated at the disaster site;

 Consignments should display the expiry dates of the products sent.

Products with limited shelf life should not be sent if they will expire in less than one year or, in very special circumstances, six months at the shortest.

The task of making international and national donors aware of the need for appropriate donations requires a permanent information and education effort as part of each country’s overall disaster preparedness strategy. The goal is to ensure that generosity goes beyond good intentions alone, and is of actual benefit to disaster victims.

 Following Up on Offers of Assistance

Many governments and international organizations have become aware of the need for more targeted donations, and will not send any consignments until they have been notified of the needs that must be met. However, they might still offer assistance that could be useful later on, but not immediately. When an offer of this sort is made, an answer should be sent immediately to the donor and a system must be in place to record such offers and follow up on them when they are finally needed. This approach also allows some time for evaluation and consultation when the offer includes unusual supplies whose usefulness is not immediately apparent. In such cases, specialized national organizations should be consulted. One of the most awkward diplomatic tasks is to refuse an offer of aid outright. Sometimes, after consultations have been made, local decision makers may determine that the supplies offered would be useless, draining energy and resources away from the distribution of more effective assistance. Recipient countries should feel free to reject, with all due courtesy, such offers and to provide guidance to potential donors about the types of assistance that would be more appropriate in the circumstances.

In practice, every donation has a cost for the recipient since financial and human resources are required for storing the supplies, transporting them, and all too frequently discarding those that are in poor condition or are otherwise unusable.

**CHAPTER FOUR**

**Procurement, Receiving, Recording, Controlling, Monitoring, Storage, Distribution of Emergency Supplies**

* 1. **Key Characteristics of Emergency Supplies**

Humanitarian or emergency supplies are those goods, materials, and equipment used by organizations to provide relief in a disaster, particularly those required to meet the essential needs of the affected population. Such supplies cover an enormous spectrum, from food, drugs, and clothing to rescue equipment, electric generators, construction materials, and tools. From the point of view of their origin, then, supplies can be of two kinds:

1. Those requested or acquired by organizations based on their intervention profiles medical, economic, reconstructive and on the needs of the affected population. Regardless of their relevance, they are generally managed by institutions that have asked for them, are aware of the contents of the shipments, and can assign a specific recipient for the aid.

2. Those supplies that are the result of the praiseworthy solidarity of the rest of the country or the world, but which do not necessarily meet the needs faced on the ground. They frequently do not have a specified recipient, and their management is the responsibility of national emergency authorities, who may have to start out by identifying the goods, their characteristics and condition; the authorities must also assign a use if any for the supplies, select the recipients, and coordinate delivery. The World Health Organization (WHO), and others international organizations, has adopted a standard classification that places humanitarian supplies in 10 different categories. Those are medicines, water and environmental health, Health supplies/kits, food, shelter/electrical/ construction, logistics administration, personal needs/education, human resource, agriculture/ livestock and unclassified.

The "unclassified" category is used for those supplies that may have expired, cannot be identified due to lack of labeling or any other reason, are useless in the circumstances, have spoiled, or were packed too haphazardly (different types of supplies in the same bags or boxes) for them to be effectively classified during the critical stage of the emergency.

In case of Human Resources, obviously, the people who take part in relief activities should not be considered, nor classified as, supplies, but their participation in humanitarian operations entails a series of needs and services, from their transport and mobilization to their feeding, lodging and health care, which must be taken into account in logistics planning. The teams on the ground should be as self-sufficient as possible, so as not to place an added burden on the already diminished resources of the affected country or region.

**Hazardous Materials**

Hazardous materials are those that, though useful, have a chemical composition that might be dangerous to people and their surroundings. Fuels, chlorinated products, cooking gas, oxygen, or laboratory reagents, which are used in everyday circumstances and are also needed during an emergency, require careful handling to prevent fires, explosions, poisoning, pollution, and injuries. Hazardous materials fall into nine categories, based on their and, within these categories, according to other characteristics of the substances themselves and their chemical reactions. International regulations set standards for labeling these products according to their characteristics and potential effects, the way they must be transported, and the precautions that must be taken when they are handled or stored.

Those who participate in emergency supply transport and storage must have access to the guidelines, which also describe the composition of the products, their mutual incompatibilities, and procedures to follow in the event of an accident. Knowledge of these standards ensures the proper handling of hazardous materials.

**Specialized Material supplies**

Frequently, a need arises for equipment or materials, so specialized that no one can expect their arrival as part of the general donations. Instead, disaster response agencies must acquire them on their own or rely on international organizations that might have them available or can offer guidance on where and how to procure them.

Specialized equipment is often very costly. It is therefore essential to be certain that a real need exists for such supplies before asking for them. It is also important to have a clear picture of what is required (the specifications), so that donors have the information necessary to respond effectively.

* 1. **Source and Procurement of Emergency Supplies**

The supplies required to respond to an emergency come from different sources, whether disaster relief organizations acquire them directly, receive them as donations from the national and international community, or get them as loans. Normally, all these procurement methods will come into play in an emergency, and each has its advantages and disadvantages. Not only that, but we are seldom in a position to choose the most appropriate one in the circumstances. Whenever possible, however, the decision should be based on technical criteria and an unbiased assessment of the needs of the affected population.

**Purchasing: Purchasing can be local or external**

To choose one or the other, certain issues should be borne in mind.

**Local purchasing**:The merits of local purchasing depend on several criteria, such as the local availability of the products needed, their quality and quantity, and how urgently they are needed. In any case, a cost/benefit analysis (including the key question of quality) must be made, and this may call for technical advice.

**Bulk purchases:** Buying a specific product in large quantities may eventually have an adverse effect on the local market, by upsetting the equilibrium of supply and demand and artificially raising prices. On the other hand, sensitive local purchasing can promote the economic recovery of the affected region.

**Storage:**Since space limitations are common when storing emergency Supplies, it is sometimes possible to negotiate with local vendors so that the purchased goods can remain in their warehouses until needed by the end users.

**External purchases:**Frequently, local availability of specific items is low or unpredictable, or the quantity and quality of locally available products is not good enough to meet needs efficiently. In these cases, procurement from abroad or from another part of the country is an option, as long as delivery times are acceptable.

**Donations:** Donations may make up the bulk of the supplies received and handled during an emergency. When they comprise items that have not been requested, are not a priority, or do not meet the needs generated by the emergency, they often complicate unnecessarily the logistics of relief operations. However, donations are still very important. When appropriate, they can not only be of value to the affected population, but also provide budgetary relief for the often cash-strapped disaster relief organizations.

**Loans:** Some people, organizations, and private firms lend equipment or their services and expertise during a particular phase of the emergency. Although many of these loans are spontaneous, it is important to identify potential lenders before disaster strikes and, if possible, establish agreements for these services during the planning stage.

Table 4.1 shows some of the advantages and disadvantages of the various forms of supply procurement.

|  |  |  |
| --- | --- | --- |
| Form of  Acquisition | Advantages | Disadvantages |
| Local  Purchase |  Prompt delivery   lower transport costs   Support for local economy |  Not always available in the quantity and quality needed   Can generate competition between organizations for the purchase of a product   Can cause shortages in the local market |
| Imports |  Possible to obtain better quality,   larger quantities   Can order according to specifications |  Longer delivery time   Higher transportation costs   Do not support the local economy |
| Donations |  Free or low-cost (bear in mind:  every donation has a cost)   Promotes national and international solidarity |  Frequently, items have not been  asked for Supplies sent may not meet local needs  If unusable, their handling leads to a waste of time and resources   It is hard to reject them if they are useless |
| Loans |  Sometimes, it is equipment or  material that is hard to purchase   Lowers operation costs |  Depends on how long the items  can be on loan   The loaned items must be cared for and must be replaced if damaged   It is hard to demand responsibility, quality, or the meeting of deadlines and other commitments |

* 1. **Receiving Supplies**

Receiving makes sure that materials delivered match an order, acknowledges receipt, unloads delivery vehicles, inspects materials for damage, and sorts them.

Reception Sites: These are the collection sites installed by disaster relief agencies, private firms, or civil society groups to receive donations. They can also function as transshipment points, places for preparing and packing consignments, and central warehouses. The may be located in the affected region itself or elsewhere.

* + 1. **Receiving International Shipments**
* Customs Procedures and Shipping Papers

It cannot be stressed too often the planning stage of the logistics activities requires careful preparations, since crucial aspects need to be coordinated in advance and preliminary agreements reached with the relevant authorities. During the planning phase, it is essential to establish contact with the customs authorities to learn their procedures and requirements and, if possible, negotiate special conditions, such as tax exemptions or priority processing of humanitarian supplies. These agreements should be backed by signed documents, to prevent having to renegotiate conditions every time high-level customs officials are assigned to new posts. During an emergency, moreover, access to customs and other authorities might become more restricted, as many other organizations and individuals attempt to obtain preferential treatment in the handling of their imports.

Some countries have ratified the Convention on the Privileges and Immunities of the United Nations, of 13 February 1946, which includes a series of measures to expedite the inflow and outflow of humanitarian supplies. Multilateral agreements among member states of regional pacts, such as the Central American Common Market or the South American Mercosur, have led to the inclusion, in their customs legislation, of preferential treatment for such supplies. It is important to know about the applicability of such measures in individual countries.

When emergency supplies arrive from abroad, it is generally more convenient to hire a customs agency to handle all the formalities. However, this is not always possible. It is therefore important to know that all international shipments must include as a minimum the following documents, which are required to clear the goods through customs such as:

Bill of Lading or Waybill: This is the shipping contract and proof that the shipment is on board. The document describes the load terms of number of packages, volume, weight, and any other useful information. Bills of lading (B/L) apply to maritime transport; waybills refer to both land and air transport. Manifest. This document indicates the type of products sent their point of origin and their destination. It is for the use of customs officials in the country receiving the goods.

Packing List: Ideally, the shipment should include this list, which identifies the load package by package, although the list is not required. This list is used in most cases when an organization is both sending and receiving the humanitarian supplies (for example, CARITAS in Argentina sends a shipment to CARITAS in Guatemala). Normally, the shipper sends these documents once the supplies have been handed to the carrier. If this has not happened, one should request that the documents be sent as soon as possible to proceed with the necessary arrangements. Other documents that may accompany the load, depending on specific situations, include the following:

 Donation Certificates: They state that the shipment is a donation and therefore part of a non-profit effort. This is important to ensure that these supplies are not subject to import tariffs in the destination country.

 Health Certificate: This has to be included whenever the shipment includes food of any kind, and certifies that the products have been tested and are fit for human consumption. In many countries, customs and health authorities will not accept a shipment of food if it does not include this certificate. It is essential to bear in mind that the certificate, by itself, is not a full guarantee of the state of the food, since depending on the type of product, delays en route or conservation problems may mean that the shipment is no longer safe to eat.

 Declaration of Hazardous Materials: This should be included when the shipment carries one or more chemical products that require special care, handling or testing, such as insecticides, laboratory reagents, or water purification products.

 International Commercial Terms (Inco terms)

The international purchase, sale, and transport of goods are subject to International Trade Standards with a unified terminology, known as Inco terms (see Table 4.2). These terms specify the conditions that apply to the transaction and the responsibilities of the seller and buyer (or shipper and consignee) regarding costs and insurance risks, the place of delivery, and so on. When acquiring products abroad, it is important to have a clear idea of which Inco term applies to the transaction. The first edition of the Inco terms was published in 1936; the newest of several additions and changes is Inco terms

2000, which reflects current trends in international trade. There are 13 Inco terms in all, of which the most common are the following:

 CIF: When the price paid by the buyer includes the cost of the merchandise itself, insurance to protect the shipment, and the price of the freight. This term is used exclusively for maritime and river transport. The equivalent term for other forms of transportation, by air, land, or a combination of several modes is CIP, which stands for “Carriage, insurance, paid to.

When using CIF or CIP, the seller or shipper agrees to:

1. Deliver the shipment at a destination port specified by the buyer or consignee as stipulated in the documents, and secure and pay for the transport of the merchandise;

2. Pay for insurance to cover the shipment from the point of origin until the merchandise is unloaded;

3. Take charge of the customs paper work needed for the shipment to leave its country of origin and reach its final destination.

The buyer or consignee must, in turn:

1. Assume all risks of loss or damage or any other costs incurred after the load is taken over by the carrier;

2. Deal with import formalities, as well as the offloading and additional transportation of the shipment upon arrival at the port.

In the case of FOB, or free on board, the seller agrees to:

1. Place the products on board then the carrier’s ship;

2. Deal with customs formalities both for export from the country of origin and import at its final destination.

The buyer agrees to:

1. Hire the transport and pay for the insurance required for shipment to its final destination.

2. Deal with import formalities, as well as the offloading and additional handling of the shipment upon arrival.

The term FOB is only used for maritime and river transport. The equivalent term for land, air, or multimodal transport is FCA, which stands for “free carrier.” With Ex Work, the price only covers the value of the merchandise at the seller’s facilities (Ex Works). The only responsibility of the seller is to sell the product. It is the buyer’s responsibility to arrange and pay for transportation and insurance from the point the shipment leaves the seller’s facilities until it reaches its final destination. It is also the buyer’s responsibility to complete customs formalities for export and import.

**4.3.2 Receiving Local Shipments**

Local shipments are generally less complicated than international shipments, since there is no need for the authorizations and other paperwork involved in moving goods across national borders. Nevertheless, preparations are still required. These shipments are generally sent by land to their final destination in the field, for storage or distribution. They may arrive by commercial carrier or in the transport vehicles available to the disaster relief organization.

 Offloading the Supplies

Generally, final destination sites do not have access to hydraulic lifting equipment; instead, brawn and brain must come into play. It is important to know what type of vehicle will carry the load, and what the characteristics of the consignment are, in order to plan for its arrival. Factors to keep in mind when preparing to receive a shipment include:

 A team should be available for offloading. It is also important to select carefully the precise spot where the consignment will be offloaded, preferably profiting from the topography of the ground by, for instance, improvising ramps or taking advantage of small irregularities so that the vehicle platform is even with the ground.

 Car or truck tires (without the metal rim) can be used to cushion the fall of packages that cannot be unloaded by hand.

 All possible safety measures must be taken for the protection of both the emergency supplies and the people offloading them. Regardless of the workload or the urgency with which the supplies may be needed, haste should not lead to accidents or damaged goods.

 One person must be in charge of supervising and controlling the offloading process to prevent the inappropriate handling of the packages and to count the packages to make the sure the consignment is complete as indicated in the packing list.

 Shipment Verification

The content of the shipment must be verified at the point of reception and offloading. If this is postponed, it may never take place, or it may be done too late to identify anomalies and assign responsibilities. Verification must include as a minimum the following procedures:

• Counting the packages and verifying the weight, this must correspond to the information on the shipping documents;

• Verifying that the load does indeed contain the goods that were expected and identified in the shipping documents as well as the request order, if one was placed;

• Checking the general condition of the load, both the packaging and the goods. It is important to watch out for leaks, torn packages, or items in poor condition;

• Verifying if any items are missing. If there is evidence that some of the packages have been opened, it is important to find out whether any items have disappeared.

 Acknowledging Receipt of Goods

Regardless of whether the shipment was international or national, the recipient must notify the sender of the arrival of the goods as soon as possible. After the verification process is complete, additional details should be sent concerning the condition and contents of the consignment.

 Controls

The function of the shipping documents is to help verify that the shipment does indeed contain what was announced by the sender. It is always necessary to engage in double-checking by engaging in both documentary verification (what is stated in the papers) and visual or physical verification of the actual supplies received. The organization’s packing list should be the official document to guide the process. The sender or provider should be notified as soon as possible of any discrepancy or problem noted. These problems should be noted in the remarks.

* 1. **Arrival and Recording of Supplies**

Procedures at entry points and reception centers for keeping records of which emergency supplies have arrived in each consignment is a key task it is the first contact with incoming donations, and effective record keeping at this point will determine to a large extent whether the rest of the system performs as it should. As noted in the previously supplies should be registered as soon as possible at the entry points and reception sites using a standardized system that includes tools for control and follow-up. This requires the deployment of record-keeping and classification teams at each point, guided by a coordinator who can resolve disputes about sorting, classification, priorities and other issues concerning the donations, their various categories, and other pre-established criteria.

The supply management methodology has produce positive results in countless emergencies and is a strong, well developed tool, which we recommend to use. The most important record-keeping procedures at entry points are:

Using the standard definition of consignment employed in humanitarian assistance operations, namely, a set of goods "that arrive at the same time, on the same means of transportation, from the same sender, and directed to the same recipient.

Making a record of each consignment upon arrival based on the shipping papers, generally, entry points do not have the proper conditions of space, for instance, to verify in detail that the shipment does indeed include all the items mentioned in the packing list; alternatively, the consignment may be addressed to recipients who must take the loads to their own warehouses. When recording incoming supplies, it is important to note as many details as possible, such as: Consignee; Point of departure; Means of transportation; Date and time of arrival; Number of packages; Weight (if possible, by category, e.g., 1,000 kg of food, 1 kg of drugs, and so on); Contents and type of packing used; Condition of the shipment upon arrival.

Sorting and labeling by priority. The organization in charge of handling the supplies should establish priorities for the different kinds of items based on the most urgent needs. For instance, in the event of an earthquake, medical supplies and equipment for treating injuries and fractures may be a priority, whereas during a flood it is food and water purification equipment that will require the most urgent distribution. Sorting by priority makes it possible to expedite the processing of the most urgently needed supplies, putting to one side those that can be sent later. All boxes and packages should be labeled clearly, indicating their priority, and grouped together in different sectors of the entry point or reception site.

For instance, the SUMA system (Supply Management System) uses the following levels:

Priority 1: Urgent for immediate distribution can be identified by a red label.

Priority 2: Non-urgent distribution. These are goods that are not immediately required but will be useful at a later stage of the emergency can be identified by a blue label.

Priority 3: Non-priority goods non-urgent distribution. Items that have been damaged, have expired, are unknown, useless, or of doubtful value. They are put to one side to be reexamined when time permits Identified by a black label. Goods can also be labeled or marked to indicate that they need refrigeration or any other special treatment.

Classifying Incoming supplies by categories and subcategories, this classification, besides helping to identify the goods received; this helps to unify the classification, storage and inventory control processes.

SUMA’s (Supply Management System) systematic approach, involving trained staff, sound classification procedures, and a user-friendly, flexible information technology mechanism, ensures that incoming supplies are properly sorted, inventoried, prioritized, and stored at their point of entry. To attain this objective, all donations, regardless of their origin or ultimate recipient, are processed at the point of entry using the SUMA system before they are delivered. This requires that relief management organizations and institutions, whether governmental or nongovernmental, cooperate closely to adopt operational policies and strategies before a disaster strikes.

* 1. **Controlling, Monitoring and Follow Of Systems**

Emergency supplies have to follow a route and a series of stages from the point of entry or reception until they are handed over to the end users, the affected population. To prevent losses or diversions, and ensure a more efficient use of resources, an instrument is required to certify the progress of the supplies through the various stages and identify the next stage in the process. These controls should indicate what types of supplies have been mobilized, in what quantity, and in what condition. They should also identify the parties that have intervened in the process.

The documentary tools and the control and follow-up procedures should be agreed upon and designed during the preparation phase of logistics planning. The registration forms used should bear some kind of official stamp or logo, be consecutively numbered, and include copies for all the people responsible for the shipment at its various stages. The careful design of the documentation is important, since it should both confirm and complement the information gathered at the various stages of the consignment’s journey. It is also important to define clearly who will be responsible for control at each of those stages. When defining control procedures one faces the difficult task of finding a balance between the use of methods simple enough that they do not hinder the flow of supplies, and of methods sufficiently thorough to keep adequate track of the consignment’s movement, integrity, and condition as it goes through the various intermediate points towards its final destination. A key issue is making sure that all the people in charge are familiar with the various types of documentation and procedures, and can supervise the various activities and human resources involved.

The following aspects should be controlled at each stage of the movement of supplies within the affected country or region (see also Table 4.3):

 Arrival of the donations and other supplies at the points of entry (ports, airports, borders) and the reception sites (collection centers, institutional warehouses, and so on) includes Arrival and registry of the goods; Temporary storage and Dispatch of the supplies (delivery to recipients for their use or distribution, delivery to authorized carriers for sending to other storage facilities).

 Transport of the donations and other supplies to other storage facilities or their ultimate destination in the field includes: loading of the supplies; Notification to the recipient of the delivery of the load; Transport (including transshipments); offloading of the supplies.

 Reception in the field or at secondary storage facilities requires:

 Physical and document verification of the consignment (quantity, weight, quality)

 Registration of incoming supplies;

 Notification to recipient of the arrival of the load

 Storage of supplies includes these activities such as Record of the arrival of the supplies; Inventory and stock control; Sanitary and safety measures in the storage facility; Record of expiry dates and rotation of stocks; Servicing and maintenance of equipment (e.g. water pumps, electrical generators, etc.) Recording and certification of the loss or destruction of items and record of the dispatch of the supplies to the final or intermediate recipient.

 Dispatch of the consignment from the storage site (deliveries for final use or for sending to distribution points) requires loading the goods; Notification of delivery to recipient; Transportation (including transshipments); Offloading supplies

 Distribution of the supplies which includes: Record of the supplies that arrive at the distribution points; Storage; Record and identification of beneficiaries; Record of the delivery of the goods to the beneficiaries; Inventory and stock control; Daily distribution report.

Table 4.2 Supply monitoring and control matrix

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | Arrival in the  country or the emergency zone of donations and other unsolicited humanitarian assistance | Electronic record (such  as the  SUMA system)  - Manual record forms | Contents by categories  - Quantity and weight  - Quality (condition of the supplies)  - Place of origin | Points of entry  (ports, airports, borders)  - Reception centers and other collection facilities |
| 2 | A specific request  from  the field is made | Official requisition form  with  consecutive numbering | That the person making  the request is authorized to do so  - Content of the request  - Consult with people in field regarding doubts or suggestion | Site where request  is received |
| 3 | When donations  and  other supplies are sent  to the field or to destination other than storage sites | -Official requisition  form,  consecutively numbered  - Official delivery authorization form | That the person making  the request is authorized to do so  - Signatures and stamps for delivery authorization  - That the load that is delivered corresponds (in type and quantity) to what appears on the shipping documents  - Destination of the load | Temporary storage  site  - During the loading of supplies into the  agreed-upon vehicle |
| 4 | Transport of  supplies | -Official delivery  authorization form  - Manifest or packing list with  consecutive numbering | -Signatures and seals  authorizing delivery  - That the load corresponds to what appears in shipping documents (type, quantity)  - Destination | -Temporary  storage facility  - During the loading  and offloading of supplies |
| 5 | Reception of  supplies at the place where they were requested | -Manifest or packing list with consecutive numbering  - Form to record the arrival of the load at the reception facility | -General condition of the  load  - The contents, quantity and quality of the goods received  must correspond to what was requested  - The load should correspond to what is stated in the  shipping papers | Reception site |

NB. All forms must be consecutively numbered and include carbon copies for each of the people responsible for any stage of the shipment.

**4.6 Storage of Emergency Supplies**

Emergency supplies must be stored until they can be distributed or used. However, it is not simply a matter of finding a warehouse large enough to accommodate the shipments. An organized system must be in place to keep track of the type and quantity of supplies and their location in the warehouse, including reserve stockpiles for future needs. The entire storage process is of crucial importance for protecting emergency supplies until they can be handed over to their recipients. Organizing warehouse so that it functions correctly means complying with current standards for protecting the quality and security of the products shipped. Some warehouses have been specially designed to facilitate storage, having the necessary space and characteristics for the safe loading, offloading, and handling of the merchandise. However, in most emergencies one has to settle for whichever spaces are available and these are often schools, community centers, gyms, and the like, that were not designed for storage. While it may not be possible to apply the following warehouse management standards and procedures to the letter, they should guide the storage process regardless of whether the warehousing facilities were built for that purpose or improvised by adapting other available facilities

 **Types of Warehouse**

Ignoring for the moment their physical characteristics, warehouses tend to fall into four types depending on their function. In reality, however, they are seldom separate, but are often different sectors of the same building, depending on the type of supply handled, the size and duration of the operation and, above all, the availability of space.

1. General Delivery Warehouse: This is a warehouse, often large, where products may be stored for a long time or just until they can be sent to secondary warehouses or distributed in the field. General delivery warehouses are often located in the capital of the country or at strategic points of a given region.

2. Slow Rotation Warehouse: A warehouse where non-urgent or reserve stockpiles are kept, including goods that are not in frequent demand, such as spare parts, equipment, tools, and so on.

3. Quick Rotation Warehouse: A warehouse where emergency supplies tend to move quickly in and out, on a daily or at least fairly regular basis. Such warehouses are more common near the heart of the emergency zone, and tend to store goods that require prompt distribution among the affected population.

4. Temporary Collection Sites: In the course of an emergency, it is common to use any space available to stockpile incoming supplies until a more appropriate space can be found. The yards, offices, meeting rooms, and garages of disaster relief organizations quickly fill up with mountains of clothes, food, drugs, and other products. It is generally hard to set up an organized storage system in such places, particularly due to lack of space, and it is desirable to move the supplies to a proper warehouse as soon as possible. However, temporary collection sites can be used to sort and classify the donations, so as to send to the warehouses proper only those goods considered useful, already presorted by category.

** The Choice of Storage Site**

A special effort must be made to find an appropriate place for storing emergency supplies, even though choices are often few in an emergency zone. When selecting the site, however, certain basic issues must be borne in mind.

 Type of Supply to Be Stored

Pharmaceutical products and foods require a well-ventilated, cool, dry place. Some of these products may even need temperature control. Other items, such as clothing or equipment, have more flexible requirements. Emergency supplies tend to include a bit of all these items, and quite often they have to be stored in the same warehouse.

 Size and Access to the Site

The size of the storage site is highly important. One must take into account not just its current capacity but also the potential for expansion of the storage area. It is always better to find a place that is larger than appears necessary. Access is another key issue, particularly by large vehicles. Location and distance in relation to the emergency zone are also important.

Internal conditions of the site (structural and nonstructural): Ideally, the warehouse should be a sturdy concrete building. Regardless of the construction materials employed, however, it should be in a good state of repair and maintenance, and not require major repairs to make it functional. It must be roofed and have doors; good lighting and ventilation are also necessary. Before the warehouse is used for the first time, it is important to check and repair the electrical installations, the water-supply and sanitation system, any leaks in the roof, and any cracks or holes in the walls or floors.

External site conditions (topography and social environment): The site should be checked for its vulnerability to natural hazards, such as the risk of flooding or landslides. Stagnant water, nearby waste disposal sites, overgrown weeds and other deficiencies should be avoided or remedied. The social environment must also be evaluated to prevent any security problems that may arise.

 Estimating Storage Needs and Capacity

The size of the warehouse needed depends on the quantity of supplies expected. However, in emergency operations it is generally hard to foresee how many packages or bundles will come in, since most of the items sent are unsolicited. It is therefore best to choose the largest possible space, even if at first the quantity of supplies does not seem to justify such a course of action. Storage space is three-dimensional, i.e., it has width, height, and depth.

In order to determine the useful capacity of a site, some basic variables must be known (see table 4.4):

 Gross space – Measured in square meters, it is the total dimensions of the warehouse (the space inside the walls) and is obtained by multiplying the length of the space by the width.

 Gross cubic meters – Looks at the entire vertical and horizontal space. It is obtained by multiplying the width by the depth by the height of the building.

 Structural loss – It is the space that is "wasted" since it is occupied by pillars, columns, dividing walls, bathrooms, and any other structural component within the building.

 Support space – Offices, space to store warehousing equipment such as forklifts, and the operations area (classification, packing, etc.).

 Net square meters – It is the actual storage space. To obtain this figure, subtract from the gross space the structural loss, the support space, and any other area that cannot be used for storage.

 Net cubic meters – This includes the entire vertical and horizontal space less the structural loss and overhead obstructions (lamps, pipes, beams, etc.). Table 4.3 Basic formulas for measuring storage space

Width x depth = square meters (m2)

Width x depth x height = cubic meters (m3)

Total square meters of the space – (structural loss + support space) = Net square meters (i.e., actual available storage space)

 Alternative Storage Sites

There will be times when it is impossible to find an adequate structure to warehouse the goods, and it becomes necessary to explore alternatives for temporary storage. One option is to build a temporary structure out of timber and corrugated iron, or using reinforced plastic, a procedure employed by Médecinssans Frontières or USAID/OFDA. Other alternatives include prefabricated structures for building storage places, which come with curved metal sheets that can be quickly assembled. Simpler but strictly short-term solutions include storing the supplies in shipping containers or in the trucks in which they arrived. This is not advisable in the case of drugs or food, which have little resistance to high temperatures. In any case, the decision of what type of structure should be built is directly related to the expected duration of the operation, as well as the possibility of finding a site with better conditions in the near future. If an alternative storage site is built, it must meet the same standards mentioned in the section “Choice of Storage Site”

 Equipment and Material Required in the Warehouse

To ensure that the warehouse functions properly, some basic equipment and materials are required. The following are some examples:

 A computer system should be in place with preinstalled software such as the SUMA(Supply Management System) applications, a spreadsheet program, or any other electronic method to record and keep track of supplies and their movements;

 Forms and cards to control stocks and inflows and outflows of products.

Basic stationery, calculators, and other office supplies;

 A metallic filing cabinet with a lock

 A first-aid cabinet and fire extinguishers of the ABC type

 An electric generator with its own maintenance material

 Refrigeration equipment, Shelves and wooden pallets on which to stockpile products, Tools for opening and closing crates and boxes, adhesive tape for packaging Scales, metric measuring tape, ladders, Cleaning materials and products, Wheelbarrows and hydraulic loading and moving equipment;

 Safety gear for the workers

 Weights and measures conversion tables.

 Warehouse Sectors

Normally, 70% of the available space in a warehouse is used for storage, and the remaining 30% as working areas for handling and moving goods, packing, and access. To make a warehouse more functional and practical, it is necessary to identify its specific sectors. A basic space distribution scheme can be summarized as follows:

 Arrival zone: The place where supplies arrive and are offloaded. Supply reception, verification and control should take place here before the goods are stored;

 Sorting, classification and recording zone: This is where supplies are sorted by priority (urgent, non-urgent, useless) and are classified by category and subcategory;

 Packing and delivery preparation zone: This is where supplies are prepared for delivery to the next or final destination. Empty boxes and packing material can also be kept here in case some items need to be repackaged.

 Storage area: This is the place to store the donations and other supplies that have not yet had a destination assigned to them. The area is divided according to the type of supply: food, clothing, personal needs, medical products, etc.

 Delivery zone: This is where supplies are kept when they are ready to be delivered. The supplies should be kept on separate pallets and labeled according to their destination.

 Administrative sector: It can be a simple desk and filing cabinet (metallic, with a lock) for handling administrative matters.

 Storage and Internal Distribution of the Supplies

The golden rule of warehouse management is never to mix products of a different sort on the same rack, pallet, or pile. In particular, hazardous materials (including powdered cement) should not be stored in the same place as food and other products for human consumption or use.

Likewise, there are a series of factors that must be born in mind when planning how to use the space, for instance:

 Similarity and quantity: Products of the same type should be stored together, not in multiple locations throughout the warehouse;

 Demand: The goods that are in greater demand should be placed in the most accessible areas

 Measurements and weight: The larger and heavier the packages, the lower their stacks should be.

 Characteristics: One must bear in mind the particular characteristics of the goods, such as whether they are hazardous to human health, fragile, sensitive to light or humidity, perishable, and so on.

In addition to these there are also other key issues those stated as the following:

 The place should be cleaned thoroughly before being used as a warehouse for emergency supplies, and it should be kept clean thereafter. Having the place sprayed for pests before any goods are stored is highly recommended. The floor should be clean and dry before any of the goods are stacked on it;

 Supplies should be stored by sectors, depending on their type

 To prevent humidity and other problems, the products should not be in direct contact with the floor or walls. Pallets or other platforms should be used; they should be free of protruding nails or splinters that can tear the packages and bales

 If there are not enough pallets, they should be used primarily to support those products that are less resistant to humidity or have been stored in sacks, paper bags, or cardboard boxes. Bottles and tins can be stored directly on the floor, although not for long. Another temporary solution is to layer the floor with plastic sheets

 Floor strength should be borne in mind when piling packages of a given weight. Special precautions should be adopted when items are stored on an upper story

 The height of the stowage should be based on the resistance of the packing material or the instructions on the boxes or crates, if any. It is also important not to block the lighting or ventilation in the warehouse

 To prevent stacks from tipping over, it is wise to alternate the direction of the boxes or bales on each layer

 Height should be kept to a minimum. Avoid high stacks of heavy boxes or packages. If working in an area at risk from seismic activity, it may be necessary to add some external support to the stacks to reduce the danger of collapse

 There must be sufficient space between the stowage racks or shelves to allow for the free movement of the people engaged in the maintenance, control, or handling of the goods. Room must also be made for the unencumbered movement of hydraulic lifting equipment if available, as well as to allow for air to circulate. The recommended distance is between 70 cm and 1 m, depending on the availability of space

 Special care must be taken to ensure that liquids, such as cooking oil or water, are stored upright in their containers to prevent leaks

 Torn packages should be repacked or distributed as soon as possible, as long as the damage to the packing does not entail a risk for the human consumption of the product

 Items for human use or consumption should never be repacked in containers whose previous content is unknown, since they could have contained hazardous products.

 Procedures for Arrival and Dispatch

These procedures are carried out in the areas designated for arrival and dispatch of goods at the warehouse, using the appropriate forms. These procedures should be established in advance, be thoroughly understood by the people in charge, and used systematically.

The following are some of the standard procedures that should be applied when supplies arrive at the warehouse:

 Every load that arrives should be checked to see if the quantity, weight, and quality correspond to the information contained in the shipping papers, by carrying out a physical examination of the load

 Once verification is made, goods should be recorded in the warehouse inventory. It is important to write down any special information about the supplies, such as whether a smaller quantity than expected was received, or the items were different from those mentioned in the packing list. On these occasions, a file must be opened about each specific case, for future verification and reference when investigating the anomaly

 Sometimes all or part of some consignments may be returned to the warehouse, because they could not be distributed or were not needed. These should be recorded as returns, not as new arrivals

 By engaging in a physical examination of the load, it should be possible to identify:

 Bundles, crates, boxes, or sacks that are torn or wet;

 Packages that show evidence of having been rifled

 Leaking containers

 Tins that are bulging, rusty or crushed, which might indicate that the contents are not suitable for human consumption

 When food is received, say grains or cereals, it is important to verify that there has been no contamination by insects. If insects are detected, the products should not be allowed into the warehouse to prevent infestation of the food already in storage. Any disinfectant treatment should be carried out by a specialist

 Powdered milk must be inspected to make sure it is not rancid

 In the case of corn, rice, beans or other grains, it must be determined upon arrival if they are meant for consumption or as seeds for sowing. Again, the inspection should be carried out by a person trained to make such distinctions.

The following are some of the standard procedures when dispatching supplies from the storage site:

 Products should spend as little time as possible in storage; hence the rotation of the stocks on the basis of "first in, first out". The items that have been in the warehouse longest should be placed in the front rows of the stowage racks so they can be distributed first, and the items that come in later are to be placed at the back, rotating them to the front as deliveries are made

 The same principle applies to products with an expiry date: the first to be dispatched are those nearest their expiry date

 A dispatch can only be carried out with an official authorization document that has been signed by the person authorized to do so

 The same procedure of physical and documentary verification that was carried out when goods entered the warehouse must be carried out when they leave the warehouse, to make sure that the supplies that are being delivered correspond to the packing list or other identification documents.

 Every dispatch must be recorded so it can be withdrawn from the inventory records.

 Control and Monitoring Systems of storage

It is part of the responsibility of warehouse managers to ensure that supplies are used by those who really need them, and prevent their loss or diversion. Pilferage or theft should be kept to a minimum. Similarly, the storage conditions must be such that they allow for the optimum conservation of the supplies.

Security of the Supplies

• Only the authorized staff should have free access to the warehouse facilities.

The presence of third parties should be discouraged as much as possible, and their access regulated and only allowed when in the company of an authorized official.

• The storage area must be secured against break-ins and theft by means of locks, fences, external perimeter lighting, and so on.

• Whenever possible, the most valuable goods and items must be kept under lock and key.

• The use of the keys to the warehouse must also be strictly controlled.

• Finally, guards must be available around the clock, seven days a week.

Rotation of the Supplies

 Minimum and maximum stock levels must be determined, as well as the point at which new supplies must be requested. The size of the stockpiles may differ depending on the type of supply and its rotation cycle.

 The "first in, first out" principle must be applied strictly, which in turn requires an up-to-date list of the dates of arrival and expiry dates of the goods.

To Control and Monitor storage there should be:

 Clear and strict procedures must be in place to control the arrival and delivery of the supplies.

 Each new arrival must be recorded in the inventory. Even those products that arrive in poor or unusable condition must be recorded as such.

 A stock control card must be available for every type of product stored in the warehouse. On the card, the dates and quantities that have arrived must be recorded; spaces must also be available on the card to register information about the delivery of the supplies. The current level of stocks of the same product must be recorded, as well as the sector of the warehouse where the product is kept.

 Regular inventories should be performed; control cards, printed inventories, and the computer database (if one is in place) should be kept up to date. Inventories and delivery documents should correspond to the information recorded on the stock control cards.

 Clear and up-to-date controls and records of losses and certification of expired or spoiled items must be kept. Normally, the destruction or discarding of expired or spoiled medicines must be carried out under the supervision of a specialist.

 Individual forms are needed to record all warehouse activities, such as arrivals, deliveries, and requisitions. These forms should be numbered consecutively and must include the date and basic information about the people involved in the process.

** Maintenance and Sanitation Measures of storage**

Regular inspections should be carried out to determine the condition of the building, particularly its electrical installations, locks, roof, and structural integrity in general. Any necessary repairs must be carried out as soon as possible to prevent the damage from getting worse.

The warehouse and its environs should remain clean at all times. The uncontrolled accumulation of waste products such as empty cardboard boxes should be discouraged. It is important to get rid of stagnant water, overgrown weeds, or any other feature in the vicinity that may encourage the proliferation of insects and rodents.

A warehouse cleaning plan must be implemented, including both daily and periodic cleaning sessions. An inspection of the state of cleanliness of the shipment racks, corners, and sectors of the building must be carried out regularly. Similarly, a plan must be in place for managing and disposing of solid waste, whether spoiled supplies, packing material, or empty containers. Warehouse inspections should be carried out at least once a week, in order to detect problems. These inspections must include, as a minimum, the following tasks:

 Checking for and eliminating from the food piles insects, spider webs, or cocoons

 Detecting damage caused by rodents, birds or insects, or the careless extraction of samples from the grain and cereal sacks

 Looking for damage caused by water or humidity, such as mold, stains, discoloration, or hardening of the packages, bales and bundles

 Detecting leaks in containers and the loss of supplies due to tears in the packages

 Detecting tinned food containers that are bulging, leaking, or rusty

 Detecting signs of fermentation in cereals. Several layers of the stowage piles should be sampled, particularly the ones in the middle.

The inspection should cover all sides of the stowage piles. All corners and dark areas of the warehouse should be inspected to locate potential rodents’ nests or an accumulation of dust or waste. The most useful measure that can be taken to get rid of insect or rodent infestations is to prevent them in the first place. Domestic animals must not be allowed into the warehouse. Contaminated food should not be mixed with other products for human consumption. It is common to fumigate warehouses every so often. However, this should be undertaken by qualified exterminators only.

**4.7 Distribution of emergency supplies**

The main objective of humanitarian logistics is to provide assistance to the people affected by a disaster or to organizations managing the disaster response. Delivery of assistance must be proportionate to needs, equitable and controlled to avoid abuse and waste.

 Key Principles of distribution

Distribution cannot be generalized and indiscriminate. On the contrary, it must be proportional and controlled. While every organization has its own policies and motivations for providing assistance to disaster victims, certain criteria must transcend the individuality of the organization and be applied at all times to produce a more equitable and effective distribution.

1. Political or religious beliefs, ethnicity, nationality, or any other form of negative discrimination cannot be criteria for determining the eligibility of the potential beneficiaries of humanitarian assistance.

2. During the most active phase of the emergency, it is imperative to distribute those goods and items that are strictly necessary to cover immediate survival needs or to improve the living conditions of the affected population.

3. Assistance should be delivered only to those who truly need it, in direct proportion to their needs.

4. Humanitarian assistance aims to support people in a situation in which their ability to satisfy their own needs has been suddenly curtailed, so it must cover the most critical needs immediately.

5. Humanitarian assistance cannot resolve a population’s entire problems. However, it can support them in finding solutions to their most pressing difficulties, complementing the efforts made by the disaster victims themselves.

6. Humanitarian assistance must be relevant, appropriate, and adapted to local customs and environmental conditions.

7. Humanitarian aid must be temporary. Long-term assistance generates dependency on outside aid and fails to stimulate the economic recovery of the affected area. Even in the case of displaced populations, who will need support for a longer period, the type of aid provided must promote self- sufficiency and a prompt return to normalcy.

 Distribution Systems

Situation of the Disaster Victims

Whenever possible, assistance should be delivered directly to the intended beneficiaries or through reliable intermediaries chosen especially for this task. The distribution system to be adopted depends on the specific conditions of the population in need, as well as the capacity of an organization to handle the distribution. The state of the affected population tends to vary depending on the type of disaster and the social, geographical, and political context. In fact, in the same theater of operations different situations may arise. Very broadly, these situations include the following:

 Disaster victims who have suffered damage to their homes and properties but who still live there or in the near surrounding area

 Disaster victims who due to the severe damage to their community, have had to be sheltered temporarily away from their normal place of residence

 People displaced from their communities (generally as a result of violence) and whose return is in doubt

 Refugees who have fled their own country out of fear for their safety or their life. The term "refugee" is officially applied only to those who have been recognized as such by the UN High Commissioner for Refugees (UNHCR). However, this does not mean aid should not be given to them before official recognition takes place, since their most basic needs cannot be postponed. What it does mean is that assistance will eventually have to be coordinated by the UNHCR.

**Direct Distribution**

Engaging in direct distribution requires a good working knowledge of the affected population and the physical and social environment. It also calls for logistical, administrative, and infrastructural capabilities. Direct distribution can provide greater control over the use of donations. However, it can prove extremely challenging if there is a lack of experienced personnel or the capabilities mentioned are not available. Some important factors affecting the success of direct distribution are the following:

 When distribution takes place in an unfamiliar area, it is important to identify people who know the region well and the community, who can provide guidance and contacts, and who can facilitate access to the community. However, one must be careful not to fall into the hands of individuals who may wish to manipulate the aid for personal advantage, or to benefit a particular group instead of the general population

 It is also important to identify community leaders and organizations that are representative of the affected population and who can help coordinate the relief efforts. Care must be taken, nevertheless, not to lose autonomy or control over the emergency supplies

 Identifying the pressure groups within the affected population, the local dynamics of rivalries and alliances, assists in foreseeing possible tensions and conflict scenarios in order to take measures to prevent or bypass them

 A system must be implemented for recording and identifying aid beneficiaries. When distribution of humanitarian supplies is first carried out, beneficiaries must receive a document to keep track of future deliveries. Most organizations use coupons, ration cards, or vouchers containing information about the beneficiaries and all assistance given to date. These documents should be presented every time aid is distributed

 A visible mark (a stamp, signature, or fingerprint) must be made on the distribution document to certify that the delivery has been made, and to prevent "second helpings;"

 It is better to register families rather than individuals. The number and age group of household members must be recorded, so that assistance can be provided in an equitable and proportional manner. It is also important to record the special needs of household members, particularly those belonging to vulnerable groups such as children, the elderly, pregnant women, or people with particular ailments or handicaps.

 Beneficiaries must be treated equitably. Every effort must be made to prevent exceptions, preferential treatment, or nepotism. Such behavior can only lead to conflicts, undermine an organization’s standards, and even threaten security.

 Delivery procedures should not be changed frequently. It confuses the beneficiaries and can reduce the effectiveness of the distribution system.

 The organization must take steps to prevent the exclusion of people who qualify as beneficiaries but who, for whatever reasons, do not have easy access to distribution points;

 Distribution areas must be identified with signs or placards, and its perimeters secured, to prevent crowding or the direct contact of the affected population with the supplies

 It is important to assign responsibilities to the beneficiaries themselves in tasks related to the distribution of the aid such as helping with the offloading or carrying of supplies, organizing the queues, or building distribution sites. Sometimes it will be necessary to ask local people, particularly local leaders, to help organize the deliveries, for instance by acting as interpreters or providing advice on how to adapt the distribution process to local or ethnic customs.

**Indirect Distribution**

When working in unfamiliar places, it is difficult for an organization to distribute supplies properly and fairly in the short time available. In some cases, the operative functions of an organization do not include handling direct distribution. In these circumstances, it is important to find a local, trustworthy counterpart that knows the population and the place, and can handle distribution.

When this approach is used, the distribution of the goods to their recipients must be carefully monitored to ensure fairness and proportionality. Another drawback is that it diminishes the visibility of an organization, something that may be undesirable. If such a course is, nevertheless, chosen, the following should be done:

 Identify a reliable counterpart with strong contacts on the ground, such as community groups, nongovernmental organizations, local institutions, or neighborhood committees;

 Avoid organizations that are in conflict with the community or other groups, as well as organizations openly associated with a political party or armed faction. In any case, one should not maintain exclusive relations with any particular group, but aim for a balanced relationship with all relevant organizations to prevent a perception of partiality and to avoid placing the operation in jeopardy.

 Before anything else, come to an agreement with the counterparts concerning the distribution procedures to be used and the control and monitoring mechanisms, including any reporting obligations by the counterpart

 Remain in close contact with your counterparts, follow up on their actions, get their feedback, and keep a presence on the ground to support their efforts and ensure that distribution follows the agreed principles and standards

 Conduct periodic physical and documentary reviews of the supplies that have been distributed and the remaining stocks, and monitor the distribution activities of the counterparts in the field.

 **Responsibilities and Criteria for Distribution**

The distribution of humanitarian assistance is a highly complex activity that demands a great deal of expertise. A poorly run operation can have a negative impact on the population it is meant to serve. Before engaging in the distribution of relief assistance, it is important to have a clear picture of the responsibilities it entails and the criteria that must govern the distribution of assistance, to ensure that it will bring about a positive change in the living conditions of the affected population.

**Criteria**

The distribution of humanitarian assistance should never take place until the capacity to meet the organizational requirements demanded by such an operation is in place. The criteria for selecting the beneficiaries, as well as the distribution procedures and methods, must be defined in advance in as much detail as possible.

To the extent possible, we should stick to our organization’s "specialty": that which it does best. This discourages us from engaging in activities in which we have no experience, or improvising actions different from those we set out to do. One must bear in mind as well that, given the evolution of the emergency, initial criteria may need to be revised and adapted to new circumstances.

Even so, any change in the intervention strategy must reflect the reality on the ground and be the result of a thorough assessment of how best to contribute to the overall relief effort.

**Responsibilities**

As already noted the purpose of humanitarian assistance is to have a positive impact on the survival and living conditions of the affected population. It is therefore the responsibility of disaster managers to make sure all efforts are directed at those goals. In conditions of scarcity, or in certain political or military contexts, access to humanitarian supplies is central in the struggle for power and control. Politicians and other interested stakeholders will often try to control distribution in order to improve their public image or benefit certain constituencies to the exclusion of others. Certain groups or individuals may claim to speak for the affected population, and try to assume the assistance. At the same time, other groups, due to their isolation or for cultural reasons, may experience greater difficulty in reaching the distribution centers, or even finding out that they exist. Such cases must be monitored to prevent exclusion. Equity in distribution and protection of humanitarian supplies are key responsibilities in ensuring that the assistance is not managed unscrupulously for political or financial gain.

**Chapter Five**

**Transparency and Information Management in humanitarian Supply chain**

**5.1 The Role Logistics of Information System**

Logistics information systems improve information flows, which integrates logistics units more efficiently with non-logistics units within the humanitarian supply chains and provides better feedback to donors, ensuring more effective operations. Humanitarian logistics activities occur across the disaster management cycle. Logistics information systems not only improve logistics activities in each phase, but can improve the continuity of humanitarian operations by sharing information throughout the transition of different disaster management cycle phases. Through collaboration between organizations, humanitarian logistics information systems also have the potential to reduce corruption and the market distortion which can occur during humanitarian operations. The basic functions of an electronic data interchange are reduction in paperwork, improved accuracy due to less manual processing, increased speed of information transfer, reduced administrative manpower, reduced ordering costs, increased employee productivity, and better inventory accuracy and order response leading to reduced inventory.

Although these systems along with other initiatives are a step in the right direction, their lack of integration limits their usefulness as an interagency communications tool. According to Long and Wood (1995), write relief workers, both in the disaster site and at their respective headquarters, need to know what supplies are available, where the supplies are located, and how best to transport them.

The ideal information system must therefore accommodate multiple organizational users and their different operating methods, plus world class communications capabilities. The parts of such an information system have already been developed, but institutional inertia has prevented their integration. The manager should keep in mind that while information systems would enhance performance measurement and sharing of data/lessons learned, any information system will be ineffective if communications infrastructure is degraded, reporting is not timely, or employees are poorly trained in the use of the tools. Information is a stepping stone for a better educated and more prepared staff as long as the system is implemented based on a familiar and well-established organizational structure. At the most basic level, to make logistics decisions, a logistics manager needs three essential data items: stock on hand, rate of consumption, and losses and adjustments. These items, in addition to any other specifically requested data, can be used to make informed decisions for supply chain management. Some of the general benefits of inventory visibility, all facilitated by the LIS, are order statuses, minimization of order error and backorders, accurate and timely requirement relay, and enhanced response to delays and stock outs. A robust logistics information system enables forecasting techniques based on frequency and intensity of past disasters and help limit the unpredictability experienced in humanitarian missions. In 1995, Long and Wood write the management of information during a crisis is the single greatest determinant of success. Forecasts allow regions at risk to prepare themselves and for relief agencies to prepare their efforts. Historical data and a contingency plan prepared in advance can drastically cut down response time. By reviewing information from past operations and implementing regional strategy based on flexible, readily deployable mechanisms, logistics can be transformed from an activity that is almost exclusively reactive to one based on preparedness and experience-based action. Logistics information systems also set the stage for identifying strengths and weaknesses of the supply chain. Quantifiable performance measures can be reviewed and used as a gauge for adjusting policies and practices. For example some indicators of logistics system functioning are actual lead time compared with expected lead time, frequency of stock outs, and frequency of emergency orders among others. Improved performance metrics is one of the benefits of timely accurate information. It should be understood that quantifiable measures will not always be available. Logistics gives an intangible service, and its quality relies to a large extent on subjective evaluation and logistics is so closely integrated with other operations and outside influences that it cannot be evaluated in isolation. This is to say that due to hard to define goals such as customer satisfaction and due to the complex interactions of the supply chain, performance may not easily be gauged. Information empowers program units to become more engaged consumers of logistic services. In this way information systems can integrate logistics into humanitarian supply chains and improve the effectiveness and efficiency of humanitarian operations. The improved information flow from humanitarian logistics information systems will also contribute to the overall effectiveness of the humanitarian operation. Therefore, Managers must also recognize that their customers, the donors and recipients, may have implicit and explicit measures which are expected to be met as a part of operational success.

In humanitarian supply chain the end recipient of aid (the beneficiary) is decoupled from the commercial transaction and has no direct influence over what supplies they receive (Gray and Oloruntob, 2006). The key decision makers within the humanitarian supply chain are the donors who are funding the operation and many NGOs regard the donor as the customer in the humanitarian supply chain (Beamon and Balcik, 2006). In commercial supply chains, the end recipient decides what supplies they require, and fulfillment can be easily evaluated by monitoring the receipt of these supplies. In humanitarian operations as supplies are determined by external assessments of the needs of the beneficiary, evaluating fulfillment become more difficult, as additional analysis must be done to determine if these needs have been met by the supplies. Humanitarian logistics information systems can provide accurate and timely information on what supplies are required, what supplies have been delivered to beneficiaries and in which locations. With this information evaluation units should be able to determine if those supplies have met the needs of the beneficiary. This feedback ensures that donors and humanitarian organizations are engaged and responsive to the beneficiaries, and supporting aid according to the beneficiaries needs.

**5.2 Visibility**

Differences in the characteristics of commercial and DRO (Disaster Relief Operations) supply chain require different ways and different focus of managing them. While logistics activities for commercial and business organizations are aimed at achieving competitive advantage in the market through one or a combination of advantages in cost, quality, speed, or responsiveness, the DRO supply chain is aimed at reducing fatality (loss of life) and alleviate suffering. Obviously, similarity exists between the two, and thus there are common principles that apply to both commercial and DRO supply chains, but the specificity of each general principle could be quite different for the two areas. There are four principles for managing DRO supply chain. These principles are Information visibility, Coordination, Accountability and professionalism.

Visibility has been one of the most important words in the field of supply chain management. Supply chain visibility is associated with an ability to see what is happening beyond the four walls of the organization. With greater visibility within the supply chain, a manufacturing company would be able to trace the status of an order placed to its supplier, obtain real demand information from the end customers through POS data, and monitor stock level of its products in the retailers and distributors. Such a visibility is attainable if partners within the supply chain are willing to share relevant information. The role of information and communication technology is critical in improving visibility across the supply chain members. Visibility has helped commercial supply chain to improve efficiency and service level as well as to speed up responses to customers. Likewise, in the defense sector, visibility is also a critical issue. For example In the Department of Defense (DOD) in the USA, visibility is achieved through automatic identification for each item in inventory so that it is possible to track the quantity available and the stock position for each item. For military purposes, it is extremely important to use such technology as automatic identification so that accurate movements of items from the suppliers to the front line can be traced.

With high visibility, a logistic officer, for instance, will be able to obtain detailed information about what is inside a container and when the container is expected to arrive in a port so that an appropriate anticipation can be made related to unloading of the container.

Similar to commercial and military logistics/supply chain, visibility is vital to the effective operations and decision-making of disaster relief supply chains. Visibility in DRO (Disaster Relief Operations) means that critical information is well accessible by the interested parties immediately after a disaster occurrence, the role of news media in delivering the updated information to the public, including the types of supplies needed, is immense. When the reliefs operations have taken place, logistics operators in the field should know what items are available, the quantity on hand, the expected days of supply, and the location (where they are stored). This would require accurate recording of inventory transactions and regular reporting to the public, aid agencies, and major donors through various means such as news media and a dedicated website. Visibility also means that major supplies in transit from donors/aid agencies are known. With high visibility, logistics people in the field as well as prospective donors would be able to determine which types of items have sufficient stock levels and which items are in shortage. In making procurement plans and appeals, high visibility enables logistics people to account for goods in transit from major donors/aid organizations.

The disaster was very soon announced through various means of communications such as the news media, various electronic mailing lists, and short message services. Soon responses from the public and aid organizations, although it took quite some time for them to start operations effectively owing to the transportation infrastructure not functioning well (including the airport). In a couple of days, over 100 organizations involved in relief operations, which include Satkorlak of both provinces, Satlak of local districts, Red Cross, military, universities, schools, news media, political parties, international aid agencies, religious groups, and professional organizations. Many of those organizations managed logistical activities on site.

Although the government, through the Department of Social Affairs, actually had some inventories for emergency aids such as tents, clothes, and foods but in the early days of the relief operations, there was still a great shortage of tents, lighting and water.

The types of medicine available were not what they were actually needed (there were shortages of anesthetics for fractured bone operations). The distribution of supplies to the target people had great difficulties in the early days owing to the restricted road access. Many of the affected people were reluctant to stay in the camp and prefer to return to their destroyed homes, making the distribution of supplies even more difficult.

The information collected from the interview as well as from other sources (Including relevant websites and news media) indicated that there was a moderate use of information technology to improve information visibility, although many of the parties involved still used more traditional means of processing and communicating information. Information visibility was obtained through close involvement of news media in communicating what happened in the field, the use of web-based information updating (done by a number of participating organizations), the use of e-mails and electronics mailing lists, and through short message services.

**Visibility needs**

Humanitarian supply chains must function in the most challenging environments and, consequently, supply chain visibility – information and data, for instance regarding products in transit and availability and stock levels at storage and distribution points – can often be poor. Increasing supply chain visibility has the potential to greatly improve humanitarian operations by providing data to inform more effective and accurate decisions, enabling evidence-based interventions and management, exposing issues for effective remedy and increasing accountability.

A common set of visibility needs can be identified for both disaster response settings and prolonged crises.

1. Be vigorous to the contextual challenges of humanitarian settings, including compromised infrastructure (e.g. roads, electricity and mobile networks), remoteness, lack of human resources and environmental conditions.
2. Track the location of products. Such information can greatly aid in management and ordering decisions, increase shipment security and reduce loss and theft.
3. Track inventory levels, especially as inventory discrepancies are a persistent problem. Inventory information can be used to balance inventory across the system, facilitate transshipment, inform inventory allocation and ultimately improve inventory management and system performance.
4. Share information – especially important in a fragmented and uncoordinated system – to enhance visibility and coordination.
5. Support decision-making because information alone is insufficient. Information technology and software are possible solutions to improve visibility, responsiveness, monitoring and reporting.

**5.3 Transparency**

The actual use of emergency supplies whether they reach the affected population or are wasted or diverted for profit or political advantage sometimes raises suspicion among the public, and even among international donors. Instances of donation mismanagement feed this suspicion, although in many cases it is caused by lack of information regarding the final destination of the aid. All organizations that intervene in relief efforts must embrace transparency in the handling of supplies, particularly when they have called on national and international solidarity to complement the resources available at the local level, turning these provisions into public goods. Transparency requires the existence of reliable mechanisms to verify that the management of supplies at every stage is correct, fair, and effective and to keep donors informed about the results of their assistance. It is the best way to maintain confidence and open new doors for the resources we need to expand our actions and save more lives.

**5.4 Accountability**

The number of parties directly involved in a DRO (Disaster Relief Operations) process which could be very large, ranging from well-established international aid agencies to local authority to individuals acting as volunteers. In addition, there are so many other organizations and individuals who indirectly involve as donors, contributing goods, money, facilities, etc. Obviously, those donors are in great interest to know that their contributions reach those in need appropriately and none is misused. Significant effort is needed to ensure that every contribution is distributed properly and reported transparently. In a major DRO where hundreds of organizations involve in the field and tens of thousands of organizations and individuals contribute as donors, it is very difficult to trace how each of those contributions is used to alleviate sufferings. In commercial supply chains, accountability can be maintained more easily. In addition to annual financial audit, accountability is maintained through standard and well-controlled business processes. For example the use of web- based supply chain in commercial sectors makes it easier to record and trace any transaction.

Humanitarian operations are complex in many ways, particularly given the number and diversity of the different stakeholders involved. There is public sector with the government agencies, emergency relief mechanism, and local authorities. There is the private sector with the corporations, service providers, good suppliers, and individuals. In between, you have the international community and the large and small aid agencies. Lastly, there is society at large, which regardless of their condition after the disaster is exposed to unexpected changes.

Among all these stakeholders there is excess of incentives and mandates that need to be coordinated for an effective response. Failure to do so would be at the expense of optimal performance and ultimately the well-being of those in critical need of assistance.

To coordinate all these stakeholders, some level of accountability needs to be present that assigns responsibilities and reports on the actions of each party. Unfortunately, lack of accountability is a systematic problem within the aid system, where donors get away with the humanitarian consequences of politicization. While there are concrete examples of wrong decisions with humanitarian consequences, it is not a common practice that donors are made accountable for them. Humanitarian agencies are not accountable for their unprincipled actions either, as long as they are fulfilling the donor’s conditions and meeting their narrow institutional interests.

Accountability can be achieved through a four-stage cycle that eventually supports the interactivity between stakeholders (Figure 2 and Table 2).

The first stage has to do with defining the roles and responsibilities of each stakeholder. This was clear for international aid agencies and donors. On the local front, there was some initial confusion between government agencies (COEN (The national emergency response authorities) and CONASOL (the National Committee for Solidarity)), but that was quickly resolved as each defined its strengths and capabilities. The second stage is the ability of each stakeholder to act on the duties for which they are responsible. Third stage is the ability to communicate clear and objective information. These two stages (2nd and 3rd) stages re supported by SUMA’s capacity to collect and process all the data and to generate reports that support the organizations’ decision-making process while informing the public of the organization’s activities. The fourth stage involves responding to and complying with agreed standards of performance and the views and needs of the stakeholders. The process of creating accountability also offers a set of standards to audit the stakeholders’ performance. For example, during an evaluation, one can build indicators to determine transparency, responsiveness and compliance for each stakeholder’s operation.

Figure 2: Accountability Cycle

Responsibility

Action

Responsiveness

Reporting

Source: Raynard (2002)

Table: 2 SUMA Processing Accountability

|  |  |  |  |
| --- | --- | --- | --- |
| Accountability | | Concept | SUMA |
| Stages of  accountability cycle | Agreement on  clear roles and responsibilities | Define roles and  responsibilities | Government, under the arms of  COEN and CONASOL, has main responsibility for management of the humanitarian supply chain. |
| Taking action | Stakeholders’ | Operations are set up using the |
|  |  | ability to put into actions their roles | SUMA  Software and units design. SUMA  assists personnel in recording incoming goods, managing the warehouse, tracking distribution, assessing need gaps against |
| Reporting | Ability to communicate clearly and objectively | The system generates objective information on the management of the goods entering and needed in the supply chain. Charts, graphs and statistics are communicated to all stakeholders including media, communities and donors. |
| Responding | Capacity to empower relations to act | As the information is divulged  The needs become apparent and associated  Stakeholders become automatically responsible. |

In general, SUMA (Supply Management System) software and a coordination platform facilitate building and protecting a humanitarian space. It increases transparency, removing non-humanitarian incentives and creating accountability amongst stakeholders. It gives stakeholders in advance the indicators with which their performance will be judged. Finally, it supports the procurement process by identifying unmet needs in the field, and tracking the flow of goods through the supply chain.

**5.5 Information Flows**

Information about the supply management operation must be disseminated from the very start of the emergency, when needs are assessed and requests go out for national and international cooperation. Throughout the course of the operation, interim reports must be published about the supplies at hand and those that are needed. Disseminating such reports from an early stage prevents rumors of negligence or mismanagement.

In addition to the reports published by the mass media, it is important to consider the information that is shared directly in the field with the various stakeholders. Those responsible for supply management must be forth coming in providing oral or written reports to local organizations, the affected population, and other actors.

 Reports to Donors

Donors involved in humanitarian assistance whether governments, large corporations, international organizations, or individuals need and wish to remain informed of the final use to which their resources are put. They want to know whether these resources were used correctly and their contribution has been useful. For their part, humanitarian organizations continue to rely to a considerable extent on the generosity of donors to cover the assistance needs of the people they serve, and they need to have some assurance that this assistance will be available for future interventions.

Therefore it is essential for a reliable resource management system to be in place that can show clearly how the aid was handled and what its final destination was. In short, donors must be kept informed.

The first step is to send confirmation to the donors as soon as their contributions have arrived, whether in cash or kind. How the notification is effected depends, among other things, on the type and location of the donor. These are some of the possibilities:

 Notifying the local representative of the donor, whether an embassy, a country office, or a commercial subsidiary

 Notifying the donor’s headquarters directly, if it is possible to make contact

 Many donations come from the public or small donors who may not be individually identifiable. The mass media must be used to issue general expressions of gratitude and report on donation figures and how the supplies are being used. Organizations with electronic media such as Web sites can use them to publish their donation reception and distribution reports.

 Public Information

Public information can serve the most diverse needs, from promoting a particular attitude in the population to easing tensions caused by ignorance of the aid operations under way. The population must be kept informed about the types of supplies needed, and actively discouraged from sending unnecessary items. Reception points for donations must be identified, and any other facts must be made public that may help potential local donors and reduce the number of unwanted donations. Similarly, the affected population must be informed of the needs that are being met and the attendant details, such as when and where distribution is taking place, and who are the people or organizations responsible for the distribution, so that those in need of humanitarian aid can have access to it. The public needs to know about the types and quantities of supplies received and distributed the operations underway, the results of these operations, and the challenges that remain.

This makes it easier for the public to understand and sometimes even provide support when logistical complications make it difficult to complete particular relief efforts.

 Disseminating Information through Relations with the Press

The media play a key role as regulators during an emergency and they tend to focus on where the relief supply system fails rather than on where it succeeds. This tendency can be reversed by adopting an effective communication strategy towards the press, including abundant information. Press releases, press kits, and the like, so that the media end up as partners in getting important messages out. For instance, the mass media can be one of the most effective mechanisms for providing feedback to donors about the real needs on the ground and the importance of abstaining from sending unwanted donations. Those in charge of supply management cannot wait until the media ask for reports. They must take the initiative by determining as soon as possible the content of the information that will be released, the way it will be presented (press releases, press conferences, interviews), how frequently they will be issued, which media outlets must be targeted, and who will act as official spokesman. In this way, the organization will be playing a proactive role in information dissemination, rather than letting journalists set the agenda.

It is advisable, even when information is provided orally, say at a press conference for it to be presented also in print after careful verification of all the facts. Reports may be general, about the entire zone or regions affected, or provide details of specific locations, depending on whether the media outlets targeted are local, national, or international.

Finally, public information should not be seen as an undesirable or additional load, but as a tool that can benefit and facilitate relief efforts. Donors, media outlets, and the public can be the best allies when they are well informed and when operations are transparent and accountable.

Humanitarian logistics information systems can:

 Enhance needs assessments by ensuring that field staff knows what supplies is available for Beneficiaries, either in local warehouses, pre- positioned emergency stocks or from local and International markets.

 Share lists of supplies available in both local and international markets, including prices and lead times, logisticians to empower program staff to better plan their procurement activities.

 Keep the program staff informed of procurement activities will help to develop an understanding of the constraints within logistics and create trust.

 Provide budget holder more accurate financial information regarding funds which are committed within the procurement process, to avoid the over or under spending of budgets.

 Provide warehouse inventory reports to program staff to allow them to take more responsibility for their supplies, and ensure that they are utilized effectively.

 Share information on the distribution of supplies to allow program staff to better monitor and evaluate activities and avoid the need for duplicate record keeping between logistics and programs.

 more accurately divide logistics overhead costs such as warehouse rental, transportation and logistics staff wages into program budgets according to the activities logistics is supporting. Information empowers program units to become more engaged consumers of logistic services. In this way information systems can integrate logistics into humanitarian supply chains and improve the effectiveness and efficiency of humanitarian operations. The improved information flow from humanitarian logistics information systems will also contribute to the overall effectiveness of the humanitarian

operation.

**5.6 The Communication Strategy**

Communication strategy is a holistic planning approach to engaging an audience to ensure greater effectiveness in communication.

The communication network must link the various operation centers such as:

 The logistical operations coordination center

 The distribution centers

 The bases of operation in the field; ports, airports, land borders, and any other place where supplies will be coming in or will be mobilized

 Mobile and convoy units

 Central and peripheral warehouses.

If international organizations are involved, moreover, contact must be guaranteed with the national body that coordinates emergency activities. Similarly, deciding which telecommunications systems and equipment to use depends on several considerations, such as the following:

 The needs to be met must be carefully analyzed to determine what system will be used and what equipment will be required

 The equipment must be well adapted to the characteristics and context of the area in which it will be put to use

 The various types of equipment must be compatible. Think of an integrated communications network, not of individual solutions

 An expert must analyze the context and equipment needs and supervise its installation and any training that may be required

 The use of radio equipment and its respective frequencies requires permits from the national authorities.

**5.7 Telecommunications System**

It is highly likely that the local telephone network in the affected area (if there is telephone service, which is not always the case) will be down depending on the type and intensity of the disaster, and restoring full service may be a matter of hours or months.

Similarly, the various types of communication systems provide to different needs and have different capabilities ranging from voice transmission to the exchange of text and graphics. For this reason, various options must be taken into account to maintain active communications.

Telephone: As already noted, the telephone service may remain indefinitely affected; access may be very limited or unreliable, and in the worst case may not exist at all. This may also be true of mobile phones. However, when the service is available, it is a flexible and reliable solution;

Fax: Less and less used since the arrival of the Internet, electronic facsimile technology remains a low-cost option for sending text and low-grade graphical information as long as there is access to telephone lines.

Satellite Communications: An option that is quite expensive, although it is extremely reliable. The equipment itself may not be that costly, but connecting to the network is not cheap. At present, there is equipment that in addition to being reasonably portable can hook up to the Internet, making it possible to transmit graphical and other types of data as well;

Radio: It is perhaps the most flexible, dynamic, economic and widely used solution in the field. There are several options:

HF Radio: High frequency, or short-wave, radio equipment makes it possible to communicate over short, medium or long distances, depending on the modulation. HF radio may be used for voice transmissions the Single Side Band or SSB System or for the transmission of text data (the Pactor System more on this below). The quality of the connection depends on the carrier wave, which varies with the time of day, the weather, sunspot activity, distance, and other factors. Due to their high energy consumption, there are no HF walkie-talkies. However, it is possible to install HF radios in vehicles when mobility is important. When working with SSB systems, two frequency bands are available: the Upper Side Band (USB) and the Lower Side Band (LSB). VHF Radio: Very high frequency (VHF) radio is used for local voice communication. Manual equipment (walkie-talkie) is available, but its coverage is limited to fairly short distances. Hence, a VHF network requires radio bases with fixed antennae, mobile radios in vehicles, and relay stations to link the various ground stations;

UHF Radio: Ultra high frequency (UHF) radio is similar to VHF, but leads to better results in densely built urban areas.

VHF Relay Stations: A relay station is essentially a radio set that serves as an automatic link between other radio equipment operating in the same frequencies. In fact, repeaters need two frequencies. They need to be placed on high ground so that their coverage is as broad as possible. It must also be borne in mind that technical failure of one relay station will leave the whole network out of service. Another aspect to bear in mind is the security of the relay equipment, since it must often be installed in isolated or remote places;

TOR: The Telex-Over-Radio (TOR) system is used to transmit text over HF radio. It is quickly being replaced by PACTOR (PACKET TOR) technology, which employs the same data packet switching protocols developed for the Internet;

PACTOR: PACTOR can be used to send text and other data over HF radio. It requires a PACTOR modem connected to the radio transceiver and a computer, either a desktop or a laptop computer on which special software called GLPLUS must be installed. PACTOR can also communicate with plain TOR stations as long as only text is transmitted

E-mail: Electronic mail is an efficient system that brings together telecommunications and computer science. It makes it possible for individuals and organizations to communicate in writing and exchange digitalized data (graphics, audio, and video). However, its use is currently restricted by the availability of telephone lines. Although satellite telephones can also be used to send e-mail, sending large, complexly formatted messages or file attachments must be discouraged because of the long time they will take to transmit and the resultant line saturation;

The Internet: The Internet is a global "network of networks" which can transmit information around the world in seconds. E-mail is one of the main components of Internet traffic, but many other services are available. The most prominent example is the World Wide Web. Nowadays, it is rare to find an organization that does not have its own Web site or "home page", with information about its activities, facts about the emergencies it is involved in, and appeals for contributions to relief efforts. These sites can be visited by all computer users with an Internet connection, regardless of where they happen to be.

**5.8 Basic Procedures**

Regardless of the communications systems used, or the combinations thereof, basic procedures must be established for the safe and efficient use of these systems. The following are just two examples:

Training: All members of a relief mission must be provided with at least basic training on the use and care of the various types of communications equipment that will be used during the mission. This must include the ability to send and receive messages unassisted.

Rules and codes: There must be clear, explicit rules for the transmission of information. For instance, when the radio equipment in use is such that transmissions can be heard by anyone with a receiver, it is essential to make this clear to those who will be sending information. They must understand which information is confidential and should not be transmitted, or should be transmitted using code words or any other appropriate vocabulary. In situations of heightened security, it is useful to have pre-established times for the various stations to communicate with each other, as well as code names and passwords. In all cases, a log must be carefully kept of all contacts established, all issues discussed, and all messages received.