A Framework to Unravel, Prioritize and Coordinate Vulnerability and Complexity Factors Affecting a Humanitarian Operation

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2004/41/TM
"A Framework to Unravel, Prioritize and Coordinate Vulnerability and Complexity Factors Affecting a Humanitarian Response Operation."

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Introduction

A successful humanitarian operation is one that mitigates the urgent needs of a population with a sustainable reduction of their vulnerability in the shortest amount of time and with the least amount of resources.

This paper intends to show that complex humanitarian crises demand a strategic approach for two reasons. The first is rooted in the vulnerability factors that contribute to the trigger event\(^1\) of a crisis. While some factors contribute directly to the event, there is usually a long list of disparate and unrelated factors that become exacerbated following the event and need to be considered in the response. The second addresses the humanitarian principles of humanity, neutrality and impartiality that regulate the actions of the organizations. Although plausible and necessary, the principles have fine boundaries that are not always visible or stable and when violated lead to more conflict.

This paper provides a guideline, and a framework for humanitarian managers to design a relief operation that: (1) takes in consideration the different vulnerability factors that could hinder the long term effects of any achievements in the field, and (2) addresses the interaction between vulnerability factors that escalate the disaster and turn it into a complex crisis. It uses the Pressure and Release Model (PAR)\(^2\) to understand the general progression of vulnerability, and analyses the complexity of these vulnerability factors. Such exercise gives managers the opportunity to classify the impact of the factors on the disaster, on the relief operation, and on the general vulnerability. The paper also suggests a format to classify and map the different vulnerability factors which should help to forecast and manage critical points where the crisis could escalate or gain further complexity.

In general this approach gives a better estimate of the needs, challenges, and limitations so that a response can be designed coordinating relevant resources and information to address all the contributing vulnerability factors while adhering to the humanitarian principles.

Disasters and Emergencies Turning into Crises

While disasters and emergencies are constantly taking place\(^3\) in society, not all of them amount to a crisis. By definition, disasters are a disruption that physically affects a system as a whole and threatens its priorities and goals. The disaster evolves into a crisis when it challenges the traditional values shared by the organization forcing the affected parties to redesign a new approach for mitigation\(^4\). Therefore what has typically worked as a response in the past is no longer an applicable solution. The incumbent response mechanisms become saturated and overwhelmed and external help is required.

Note that the magnitude (i.e. size and intensity) of the disaster alone is not enough to declare a crisis. A crisis occurs when those responsible are unable to improve the conditions with their capabilities and are forced to seek support to design a new strategy. This could still be the case in small contained disasters. If the immediate response can be effectively achieved
through the use of routine resources and conditions, then the situation is merely an emergency, not a crisis\textsuperscript{5}.

For example, a hurricane that impacts a city is a disaster based on our definition. However it would not be considered a crisis unless the local emergency response mechanism, and the rest of social structures are unable to respond to their own needs with the traditional or incumbent tactics. The crisis can be declared when the local government is forced to seek outside assistance that will tailor a response that goes beyond the local capacity\textsuperscript{6}. From an operations angle this is basically how a disaster turns into a crisis.

**Responding to a Complex Crisis**

When the managers from the different humanitarian agencies and organizations arrive at the disaster site at the onset of a relief operation, they face a long list of tasks under a lot of pressure and perhaps even limited resources, infrastructure and staff. Oftentimes the needs are still not clear, acknowledged or communicated. For this reason the whole relief operation tends to be designed around the immediate needs related to the trigger event. However, to bring back some stability they would need to address the factors that contribute to a vulnerable environment to prevent the consequences of the disaster from escalating\textsuperscript{7}. If the key contributing factors are not considered and addressed properly, the operation merely attempts to restore a previously established status quo with its inherent levels of vulnerability. Recovery may mean a form of stability rather than any recognizable form of a previously attained status quo\textsuperscript{8}.

It is useful to keep in mind that the key contributing factors that maintain vulnerability high are not always associated to the trigger event and therefore frequently undermined in the immediate response strategy. For example, poor building conditions or the political environment can maintain vulnerability high even if you are only dealing with a hydrometerological phenomenon\textsuperscript{9}. The unanticipated association of events is what makes the crisis complex demanding a strategic response rather than just a tactical one for several reasons. First, a tactical response would imply that there is a traditional solution that will work\textsuperscript{10}, and by definition complex crises as explained above challenge this type of response. Secondly, a tactical response would only address the consequences of the event without addressing its roots thereby leaving room for the disaster to reappear. Lastly, a tactical response will overlook the relationships between all the vulnerability factors present leaving room for the consequences to escalate in scale or intensity.

On the other hand, a strategic response implies that numerous factors be considered in a wide range of areas. For a response this implies that a single specialized agency\textsuperscript{11} can neither perform the whole operation independently, nor will they be able to achieve any sustainable progress without the support of other specialized agencies. For example, the United Nations Children’s Fund (UNICEF) will most likely require some assistance from the World Food Program (WFP) and the United Nations Development Program (UNDP)\textsuperscript{12} to achieve any sustainable results in a particular project anywhere in the world. So it becomes necessary to have a strategy for all of these parties to work together and coordinate their efforts.

Two good examples of complex emergencies where a strategic management approach improved the outcome of the operation are the 2001 El Salvador Earthquakes and the 2002 Southern African Food Crisis. Both of these crises were triggered by a natural phenomenon of great magnitude that resulted in severe damages and losses demanding timely responses. Even
though the respective emergency response mechanisms were very effective addressing the
needs pertinent to the disaster they underestimated the disasters’ ability to exacerbate various
unrelated vulnerability factors not considered earlier (See Table 1).

Table 1: Factors Contributing to Vulnerability Prior to Crises

<table>
<thead>
<tr>
<th>Disaster (trigger event)</th>
<th>El Salvador</th>
<th>Southern Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Set of earthquakes measuring 7.6 and 6.5 on the Richter Scale</td>
<td>- Famine: severe regional food shortages</td>
</tr>
<tr>
<td>Vulnerability Factors</td>
<td>- Geographically positioned over seismic area</td>
<td>- Erratic weather patterns in different areas caused losses of crops</td>
</tr>
<tr>
<td></td>
<td>- Land redistribution policy forced large amounts of rural population to move causing urban overcrowdedness.</td>
<td>- HIV pandemic significantly reduced the labor force and the average life expectancy</td>
</tr>
<tr>
<td></td>
<td>- High levels of poverty and poor land accessibility led to settlements in unsafe areas and sub optimal building techniques</td>
<td>- Mismanaged grain reserves at lower than advisable levels</td>
</tr>
<tr>
<td></td>
<td>- Latent effects of 12 years of civil war that polarized the nation over the death of 75,000 people</td>
<td>- Economic downturn affects purchasing power and productivity while highlighting already critical poverty in some areas</td>
</tr>
<tr>
<td></td>
<td>- Politically polarized management and society with a large gap between rich and poor.</td>
<td>- Uncommunicated pockets of populations in remote areas.</td>
</tr>
</tbody>
</table>

The 2001 El Salvador Earthquakes

Unlike Southern Africa, El Salvador was not accumulating factors that would eventually lead
to a major crisis. Vulnerability was already very high socially, politically, and geographically
causing an even more catastrophic impact of the sudden onset disaster. Although the local
emergency response mechanisms were fully capable of responding to a disaster with
extensive trainings and preparations, the country lacked awareness and policies to reduce risks
and vulnerability (e.g. poor urban planning and zoning, unregulated building codes,
corruption). These factors were simply of a different nature and beyond the reach of COEN.

For example, in El Salvador approximately 60% of the families earn less than two minimum
wage salaries combined. It also has one of the highest population densities in the world
(300/ km²), with half of its population living in urban areas. The result is that large
percentages of the people built their homes with poor materials and deficient techniques in
very high-risk areas like riverbanks and hillsides extremely vulnerable to natural disasters.
Disasters and vulnerability are nothing new to the nation, since two thirds of the territory is
located on seismic terrain, while another third is considered flood zone, in addition to
volcanoes and its location on the hurricane zone. Add to all this that the effects of 12 years of
civil war were still latent creating extreme political and social factions.

The elements for a catastrophic disaster were present, but worst yet were the elements to
make the relief operation more complex. The humanitarian managers that went to work in this
disaster found themselves dealing with political problems they had not anticipated. The
operation was managed by the ruling party, closely associated with the upper and middle class
while the rest of the population associated themselves with the opposition party, a former guerrilla movement. An intermediary commission was created last minute by presidential mandate to assist COEN’s efforts. Aside from creating initial confusion and some duplication of efforts, CONASOL\(^16\) was made up of representatives from the private sector, which is predominantly associated with the ruling party. However cumbersome, in the end, COEN and CONASOL found ways to work together with minimal overlaps. These factions interacting throughout the operation were fertile grounds for political manipulation of the aid, a situation that the humanitarian managers had to carefully avoid and monitor and many Salvadoreans still believe took place. Public polls showed that at least 54% of the population believed there had been political manipulation in the distribution of aid, and only 23% believed it was need-based. It is important to note that 70% percent of the respondents identified themselves with the opposition party (FMLN)\(^17\).

One thing that did help humanitarian managers to minimize the effect of these factors was the implementation of SUMA\(^18\), a humanitarian supply management system endorsed by the Pan-American Health Organization (PAHO)\(^19\). SUMA is both a software and a methodology that facilitates the management of incoming goods and their distribution with some basic tracking and warehousing techniques to prioritize, sort and report the goods that are in the humanitarian pipeline. In this particular crisis the reports contributed with an unprecedented level of transparency and accountability that helped to minimize diversion and political manipulation of the aid. These reports enabled donors to see through their donations, gave the press clear objective information to disseminate, informed recipients what would soon arrive and helped to identify outstanding needs.

In this case, SUMA would be considered an effective mechanism since it facilitated coordination activity within the community and between the community and the external organizations throughout the evolution of the crisis. Like most decision support systems that facilitate self-organization\(^20\), it also recognized the dynamic nature of the disaster and focused on decision points that enhance or reduce the likelihood of the event from its reoccurrence\(^21\). Having the software implemented and the methodology in place did not prevent any seismic activity, but certainly helped to identify, monitor and forecast needs in the field therefore mitigating the impact of the earthquakes.

**The 2002 Southern Africa Food Crisis**

Consecutive seasons of failed crops, erratic and extreme weather patterns had severely affected the local food productions and reserves through the Southern African Development Community (SADC)\(^22\) region. By March 2002, the World Food Program (WFP) and other large humanitarian agencies began to design an emergency operation with the support of the local SADC authorities. Together they would address the immediate estimated need of 1.4 million metric tons of food, plus an additional 4 million for the following 12 months. While the magnitude was large the problem seemed reasonable for WFP given their extensive track record with food emergencies and knowledge of the area. However upon deployment WFP and its partners realized that the crisis was beyond food issues. In fact they were dealing with a complex crisis affected by severe demographic changes from the HIV pandemic, economic downturn, mismanagement of grain reserves, among others. Furthermore there were supply issues with deficient infrastructure in some areas that made access to remote and disperse populations challenging.
Instead of treating this as just a food crisis, WFP had to consider all the different factors playing a role during the relief operation. The main priority remained food availability and distribution but connected to it were agreements to address the HIV pandemic, reactivation of the local economies and distribution challenges. To execute this approach in June 2002 WFP set up a regional logistics coordination center, ReLogS, in Johannesburg to oversee the logistics activity and operation. Among ReLogS’ main responsibilities were the liaison with WFP HQ and country offices, donors, and commercial transporters, port and customs authorities to facilitate the movement and delivery of food aid and the tracking and reporting of the status of WFP logistics operations.

This coordination structure proved beneficial in helping all the parties involved maximize the use of their resources with relevant information while addressing the multiple issues that made up the crisis. ReLogS’ website maintained timely information about fuel, customs, corridors, transportation, warehouses, maps and other relevant items. The staff became very involved in negotiating agreements at different levels with authorities, suppliers, and other organizations to reduce bottlenecks and duplication of efforts. Their presence alone promoted a dialogue among the organizations to collaborate all throughout. They were most successful at obtaining funding for development projects that reinforced the local infrastructure and capacity (i.e.: road and bridge repairs, port equipment, and railway track restoration). All these things proved even more beneficial later on when the operation was challenged by some of the countries’ decision to reject the foreign aid that was arriving based on it genetically modified status. At this point of the operation coordination and complexity reached an all time high.

**Principled Approach**

The first layer of complexity in a humanitarian operation is its context. Humanitarianism is defined by its three principles, which humanitarian managers must consider and adhere to in their decision making: humanity, impartiality and neutrality. These set a standard for what a humanitarian operation should be concerned with and delineate the role of the agencies. The principles are integral part of the humanitarian policy frequently quoted in most mandates. These principles need to be observed as decisions are taken and the programs are rolled out considering how they affect the whole operation as the criteria for what is an acceptable decision. Therefore each activity needs to be evaluated for its potential ramifications to the outcome of the crisis. In general the principles raise the level of complexity as they set boundaries for the activities that the organizations can engage in.

Humanity implies that human suffering should be relieved wherever if found. Dignity of people should be respected and protected. This is perhaps the simplest to implement since humanitarian operations are deployed for the very same reason of relieving suffering where found. The issue becomes who is identified as a group in need and what access is there to them. In general the most vulnerable areas tend to be the most underdeveloped and for the most part the hardest to assess after a crisis making it difficult to identify the degree of assistance needed. Take for example, the case of the isolated groups of people in Mozambique during the 2002 Southern Africa Food Crisis. It was not until after the evaluation that the agencies were able to know that these people where in fact the hardest hit. Before information about them was simply unavailable, access to them was difficult and little was known about their condition.
Neutrality implies that relief should be provided without bias or affiliation to a party in the conflict. Neutrality can also be interpreted as ideological or simply non-participation. This implies that the aid should be completely distributed without any affiliation to one party or other. WFP in Southern Africa faced this challenge when the countries decided to reject the genetically modified food aid. Despite the cost and logistical implications the WFP had to remain neutral on the issue, remove all stocks from their territory and find alternate ways of fulfilling the needs. In other cases, implementing partners could be the national governments where political agendas could play a role.

Impartiality indicates that assistance should be provided without discrimination with priority to the most urgent needs. Impartiality in operations can be evaluated more precisely in terms of non-discrimination, proportionality, and non-subjective distinction of recipients. Inherent in this definition is the issue of under what guidelines are the needs assessed and prioritised and what validity the community gives. Managers in El Salvador faced this challenge. SUMA provided information about the inventory and the humanitarian pipeline, yet the information was factual and objective only. The decisions of whom should be recipients and how to prioritise distribution remained in the hands of the government and its agencies.

Principles as Barriers to Conflict

Keep in mind that humanitarian assistance brings additional scarce resources into societies experiencing social change, where the process of change itself often involves conflict. The conflict connection is highlighted by the availability and control of resources at a disaster scenario. The connection appears to be considerably stronger where humanitarian activities constitute a substantial increment to available resources. The resources tend to become an asset to which access has a premium for the parties involved. For example, El Salvador was notably undergoing a lot of changes prior to the earthquakes facing the aftermath of a long and violent civil war and economic downturn. When the relief operation was executed, the aid was most accessible to the ruling party as they controlled the economics and the politics of the operations. However, the majority of the population was located in regions controlled by the opposition. Therefore the humanitarian managers had to make sure the aid was impartial, in other words proportionally distributed to all groups in need without discriminating on the basis of political affiliation and without subjective distinction of the recipients. Failure to do so would have exacerbated the social and political tensions present.

According to McFarlane, there is a ‘conflict connection’ should the operation disregard the boundaries set by the humanitarian principles. Technically, the principles set a limit to prevent the humanitarian aid from interfering in the outcome of the conflict by strengthening any of the parties. When neutrality is compromised, aid may become an incentive to peace transforming the outcome of the conflict to one side. On the other hand, aid can be manipulated to limit damages by replacing impartiality with political objectives. Lastly, any compromise on the humanity principle would nullify the intent of the operation and take it out of the ethical context and mandate of the participating organizations (See Table 2).
### Table 2: Spectrum of Positions on Conflict Connection

<table>
<thead>
<tr>
<th>Position</th>
<th>Aim</th>
<th>Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Classical Humanitarian</strong></td>
<td>Full adherence to humanitarian principles. Seeks to assist regardless of the consequences.</td>
<td>If you fail to consider consequences of aid you run the risk of politicisation of assistance.</td>
</tr>
<tr>
<td><strong>Damage limitation</strong></td>
<td>Avoid doing harm in the process of providing assistance and protection.</td>
<td>Compromises neutrality and impartiality, replacing them with political objectives and shaping the process of conflict.</td>
</tr>
<tr>
<td><strong>Conflict Transformation</strong></td>
<td>The use of humanitarian action to promote peace only.</td>
<td></td>
</tr>
<tr>
<td><strong>Aid for victory</strong></td>
<td>The use of humanitarian action to secure the victory of one side over another.</td>
<td>Aid as a weapon with no adherence to humanitarian principles</td>
</tr>
</tbody>
</table>

To better understand how the principles act as barriers to conflict, it is useful to picture them as a triangle (See Figure 1). Each corner represents a principle, and the area in the middle is the space in which the organizations should operate to maintain the integrity of their mandate. This space is often referred to as ‘humanitarian space’, ideally where humanitarian agencies would operate.

### Figure 1: Humanitarian Principles Framework

![Humanitarian Principles Framework](image)

Keeping the activities within the triangle can be challenging for the parties working to minimize the conflict connection in a complex crisis. Humanitarian managers are not always able to assess the different components of each issue they are dealing with and therefore may lack a complete understanding of the factors that are at play and the ramifications of their actions. What may seem like a humanitarian need at glimpse, may in fact be a symptom of a greater political or social problem. Then, it becomes a challenge to isolate and address the humanitarian needs without interfering in the conflict. Should the needs not be well isolated, the humanitarian actions could aggravate the root problem by strengthening parties, fuelling the issue, or altering the incentives for a solution.
It becomes more complicated to maintain all the actions within the triangle given the amount of actors involved in a humanitarian operation. For the operation to be successful the different actors need a common understanding of shared risks inherent in their decisions\(^{34}\). The actions of one agency have repercussions on the rest. When risk is shared, actions taken by one person may increase the risk, escalating the event into a wider disaster for all persons exposed, or reduce the risk, bringing the threat under control and limiting the consequences for the entire community\(^{35}\).

**Analysis Framework to Support Strategic Approach**

The 2001 El Salvador Earthquakes and the 2002 Southern Africa Food Crisis show ways in which a strategic approach focused on coordination can help minimize escalation while addressing multiple contributing vulnerability factors. In El Salvador, the implementation of a coordination tool like SUMA helped to streamline the logistics processes, speed up the supply chain, and bring the so needed transparency and accountability for all parties. In Southern Africa the deployment of a coordination platform like ReLogS, to de-bottleneck and inform, helped to build a resilient structure where the issues could be dealt with quicker and more efficiently than they would have been otherwise. However, in either case it is not clear that humanitarian managers were fully aware and/or prepared for the issues they would end up dealing with.

These issues can be rather complex and difficult to isolate depending on how much relevant and accurate information is available. There are several steps we recommend to analyze the issues. First, use the Disaster Pressure and Release (PAR) Model\(^{36}\) to understand vulnerability. Second, analyze the complexity of the vulnerability factors. Third, map how these factors affect the operation.

**PAR Model: Identifying Vulnerability Factors**

The PAR Model (See Figure 2) was particularly chosen for this paper because it provides a frame to identify the factors that turn a disaster into a crisis, namely the other disparate and unrelated factors of vulnerability, and because it helps to identify these factors and their relationship to each other in the make up to the crisis. The model is a tool that shows how disasters occur when natural hazards affect vulnerable people. Their vulnerability is rooted in social processes and underlying causes which may ultimately be quite remote from the disaster event itself\(^{37}\). The basis for the PAR idea is that a disaster is the intersection of two opposing forces: those processes generating vulnerability on one side, and the trigger event on the other. As it has been pointed out earlier this model suggests that the trigger event is isolated and distinct from the conditions that create vulnerability. It also suggests that disasters require us to trace the connections that link the impact of a hazard on people with a series of social factors and processes that generate vulnerability\(^{38}\). The model describes vulnerability as a combination of root causes, dynamic pressures, and unsafe conditions that interact with a hazard to create a disaster.
Figure 2: Disaster Pressure and Release (PAR) Model

Unraveling Complexity

The higher the level of complexity, the more likely it is that a disaster will become a crisis. Therefore, once the vulnerability factors that contribute to the crisis are identified, cause and effect links can be drawn between all these to understand their complexity. This type of knowledge can help managers to know which issues are simpler to solve and which require immediate attention before they interact with the rest of the factors. As the links and relationships are recognized an even fuller picture of the situation builds that helps managers to identify future challenges and limitations.

Complexity is defined as the result of one or several of the following factors: diversity, interactivity, invisibility, ambiguity, incremental change, and new phenomenon. A diversity of factors can make it difficult to understand which one predominates or what type of problem is it that you are dealing with precisely. Such was the case in Africa where the famine, the HIV situation, the economic conditions and limited access to at risk populations were all combined to make the crisis complex. Interactivity among the factors accelerates the rate at which the disaster might escalate. For example, after long periods of rain water-saturated terrain is more likely to generate mudslides, especially during an earthquake. Invisibility comes from the inability to anticipate factors typically because they are unknown in different dimensions to the managers. The classic example of invisibility is when foreign aid workers underestimate the importance of local customs and habits in the relief area. For as much as they can try to estimate it, without the perspective of a local partner many important factors will remain invisible leaving the manager unaware of potential damages. Ambiguity makes it difficult to know in which direction the crisis might escalate since the cause-effect relationships are not clear, making it unpredictable for managers to
forecast the implications of their decisions. This is the classic case heard on debates about what exacerbated a disaster: the lack of resources, trained personnel, accurate information, or all together. Incremental change happens when the impact of the crisis is so strong early on that everything else is disregarded. The problem is that while ignored the other factors become invisible, grow and interact leading to more consequences. New phenomena always present a great challenge since the effects and impact are most likely unknown with insufficient time for appropriate analysis of the situation. In a way that is what happened in Africa as well, since the 2002 Food Crisis was the first time HIV played such an important role.

Table 4: Factors of Complexity

<table>
<thead>
<tr>
<th>Diversity</th>
<th>When different factors are at work in making it difficult to unravel the ingredients of the situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactivity</td>
<td>Where different factors interact with each other making it difficult to unravel the ingredients and to map their influence on each other or on the cumulative outcome</td>
</tr>
<tr>
<td>Invisibility</td>
<td>When factors that possess the potential to cause crises are distant to the managers’ perspective or field of operation (geographically, psychologically, physically, or cognitively). Consequently unaware of potential dangers</td>
</tr>
<tr>
<td>Ambiguity</td>
<td>Where cause–effect relations have been indicated but with disagreement as to their roots and nature</td>
</tr>
<tr>
<td>Incremental Change</td>
<td>Where major impact is felt at one point only overshadowing previous threats that remain to grow eminently</td>
</tr>
<tr>
<td>New Phenomenon</td>
<td>Where the effects being observed are new and insufficient time has elapsed for appropriate analysis</td>
</tr>
</tbody>
</table>

Unraveling the complexity of the contributing vulnerability factors gives humanitarian managers an opportunity to control the potential for escalation. Through the analysis the aim should be to assess in advance critical points where two or more factors may combine and raise complexity. These critical points become turning points of the relief operation where most information, coordination and collaboration will be needed. If the nature of these critical points is identified, humanitarian managers can even predict what type of resources and information they will need to make the best decision. Then they can rely on their information management systems or coordination tools (i.e. SUMA or ReLogS) to support their decision making.

Mapping the Factors’ Effects: Prioritizing and Coordinating

Assuming that those in charge of designing the humanitarian operation have substantial information available to discern the vulnerability factors and their complexity, we recommend that they classify the information in three groups: factors causing the disaster; factors not related to the disaster but affecting the operation; and factors related to neither the disaster nor to the operation that affect the vulnerability of the recipients (See Figure 3). Having classified the information it becomes easier to understand which factors contribute to making the disaster a complex crisis but most important how the different factors may interact raising the complexity.
Among its numerous benefits, this map helps to identify the priorities in the field for the managers to focus and invest their resources most efficiently and effectively. For example, the first priority would naturally be given to the vulnerability factors that are directly related to the event and shape the immediate needs of the population. These first set of priorities are more obvious in a sudden onset event like an earthquake or any type of natural disaster. For example in El Salvador the humanitarian managers focused immediately on providing food, water, safe shelter and medical assistance to all those in need. But it can also be applied to a slow onset crisis like Southern Africa, in which case the priority is determined based on the assessed needs at the time the operation is deployed. For example, building up the food stocks and setting up distribution points.

The second set of priorities that humanitarian managers would need to focus on are the intersections between the immediate needs (from the first set) and other vulnerability factors. These are what we consider to be the critical points, which although had no contribution to the disaster itself, affect the complexity of the operation turning it into a crisis. If the two factors intersecting are not managed they will compound and lead to disaster escalation. Recall for example the political components of the operation in El Salvador where managers had to react to the bipolarization of political groups or in Southern Africa how the HIV situation impacted the operation.

The third set of priorities is those vulnerability factors that have neither contributed to the disaster, nor cross directly with the other factors that derive from the disaster. These factors still need to be addressed to reduce the general vulnerability and to ensure the sustainability of the results. In most cases, these factors may be more relevant for the development stage rather than the humanitarian relief. They include a wide variety of topics that range from reinforcing the infrastructure, to implementing programs that increase access to education,
better and safer living standards or in some cases political and/or economic reform (See Table 5).

### Table 5: Classification of Factors

<table>
<thead>
<tr>
<th>Vulnerability</th>
<th>Southern Africa</th>
<th>El Salvador</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factors directly related to the disaster</strong></td>
<td>Consecutive droughts, flooding and food reserves.</td>
<td>Large percentage of the population in need of housing, immediate medical attention, food and water.</td>
</tr>
<tr>
<td><strong>Factors not related to the disaster but affecting the operation</strong></td>
<td>Poor access to population groups in remote areas. High levels of HIV infection. Rejection of genetically modified whole kernel maize</td>
<td>Poor urbanization, high population density. Socio-political polarization</td>
</tr>
<tr>
<td><strong>Factors affecting neither the disaster nor the operation but affecting the vulnerability</strong></td>
<td>Reduced labor force. Overcharged government welfare systems.</td>
<td>Tension over recent civil war. Geographic position</td>
</tr>
</tbody>
</table>

This exercise also helps to identify the critical points at which managers will need crucial information to support their decisions. Identifying all these critical points also has an added value for coordination. If the crisis is perceived as the product of all these factors interacting, coordinated action is possible if one identifies the critical points at which a response system evolves and provides timely, accurate information to decision makers at those points.\(^{43}\)

Each critical point, noted by the circles in the graph, indicates an opportunity to collaborate and coordinate. At these points the goal is to reduce the potential for the disaster to escalate if the two factors compound. In other words, if each factor is addressed by the corresponding agency independently, the response will be fruitless because as soon as both factors meet they will compound and demand a new approach as it escalates. For example, in the case of Southern Africa it could be argued that food availability crossed with the high levels of HIV infection and the poor access to population in remote areas. At the first critical point, it was necessary to alter the basic food basket to meet the nutritional needs of an infected population. In the second critical point, considerations had to be made for distribution to remote areas including finding more implementing partners, gaining a better knowledge of the areas, in some cases engaging in infrastructure projects.

These critical points become the blueprint for where a coordination platform like ReLogS, or a decision support system like SUMA is needed to support the managers by monitoring and assessing the resources available that meet the compounded need; informing who owns or controls which resources; and in some cases negotiating access for the parties. For example when food availability crossed with Zambia’s rejection of the whole kernel corn, ReLogS helped to find alternate resources of food, identified suppliers and upon reaching an agreement to mill the maize, helped to redesign the whole supply chain incorporating mills, a bagging process, new hubs and warehouses, and tracking the whole process.
Conclusions

Not every disaster is a crisis, let alone complex. Disasters evolve into crises as their complexity increases and they interact with other vulnerability factors demanding a response that challenges the traditional response mechanisms and capabilities.

Complex crises demand the intervention of multiple specialized agencies that will be addressing the different factors. For the most part complex crises require non-traditional responses tailored to the needs, and a comprehensive long-term plan to reduce vulnerability. To attend to all these considerations the best is to develop a strategic response plan that aims to coordinate the response activities.

The responding agencies must consider the humanitarian principles of humanity, neutrality, and impartiality in their actions to ensure that their intervention does not lead to further conflicts. Each agency responding should examine the implications of the principles for their operations. Operating within the principles should be their aim and for such the strategic plan should facilitate tools or platforms for inter-agency coordination and communication.

We suggest that in designing the response operation, humanitarian managers analyze the vulnerability factors that drive the disaster to become a complex crisis using the PAR Model. Secondly, that they trace the relationship between these factors and how they shape complexity. Lastly, we recommend they group and map the factors in three groups and figure out which are directly related to the disaster; which are not related to the disaster but affect the operation; and which are related to neither but affect vulnerability. The result from these three steps is dynamic as it changes with the situation, so it should be revisited as the crisis evolves. At any point it will help to prioritize the needs and activities, and to identify the critical points in the operation at which information may be needed to coordinate activities and avoid conflict or escalation.

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1 In this paper, trigger event is referred to as the event that prompts a humanitarian relief operation. In the case of rapid onset it could be a natural phenomenon (e.g. tornadoes, hurricanes, or earthquakes) or man-made (e.g. belligerent attack, bombing, chemical leak). In case of slow onset could be a famine, critical poverty, rising political or social tensions, etc.
3 Could be argued that these two are actually integral part of society as catalysts for change and evolution.
6 In 1992, Hurricane Andrew landed in Homestead, Florida. It destroyed the military base, caused significant damages to the local telecommunications systems, and overwhelmed the local and state response mechanism. The response was unprecedented and was largely supported by the federal authorities. We could say that Andrew was a crisis since it challenged all the tactical responses that were in place for this type of event.
7 A disaster escalates while the vulnerability factors that contributed to the consequences of the disaster remain unaddressed since these factors are dynamic and will continue to interact with each other to create new issues.
9 Example: In 1999 the central coast of Venezuela experienced catastrophic landslides causing thousands of deaths and disappearing entire communities. The rains responsible for the landslide reached a critical level on the same day of a tense and controversial constitutional referendum. However, in Venezuela suffrage is mandatory and therefore authorities waited long before announcing an evacuation order that could have saved entire communities. In fact main roads had been blocked to prevent people from leaving the affected area unless they had voted.
by definition traditional, tactical responses would only work in emergencies.

Since its inception the UN system has been divided into specialized bodies. Only four of them have a humanitarian mandate to react immediately to crises and emergencies. These are World Food Program (WFP), World Health Organization (WHO), United Nations Children’s Fund (UNICEF) and United Nations High Commissioner for Refugees (UNHCR). These four operate with the administrative support of the Office for the Coordination of Humanitarian Affairs (OCHA) and communicate with the NGOs and governments through the Inter-Agency Standing Committee (IASC).

Although a development agency, UNDP is present in most humanitarian operations to support efforts. Technically it assumes the responsibility for development once the relief phase is done. Its presence smoothens the transition between the relief/humanitarian into the development phase that follows. Since the relationship between relief and development is not linear, the humanitarian and the development agencies are often seen working together on the field. For example, the water sector after a disaster might be ready for long-term development and reconstruction assistance, whereas the health sector which may still need substantial short-term relief assistance.

National Emergency Committee, local agency responsible for emergency management in El Salvador.

Even though disasters affect indiscriminately, in general purchasing power impact a social group’s ability to seek alternate resources and mitigate their own condition at a faster pace.


National Commission for Solidarity.


PAHO is the regional office of the World Health Organization for the Americas which funds various programs for the reduction of vulnerability and disasters impact in the region like this one. SUMA is managed by FUNDESUMA, a Costa Rican-based non-profit organization which trains and distributes the software and methodology to authorities, emergency response agencies, humanitarian organizations and civil servants. http://www.disaster-info.net/SUMA/


Comfort defines ‘self-organization’ as the spontaneous reallocation of energy and action to achieve a collective goal in a changing environment. The concept indicates a degree of flexibility to respond to dynamic conditions as the different factors contributing to the crisis continue to interact.


Only six of the member countries were affected by the crisis: Mozambique, Malawi, Lesotho, Swaziland, Zambia, and Zimbabwe. The SADC also includes Angola, Botswana, Democratic Republic of Congo, Mauritius, Namibia, Seychelles, South Africa, and Tanzania.

ReLogS was set up with five main units: Port and Overland Logistics, Regional Infrastructure and Special Operations Unit, Information Management Unit, Financial tracking Unit (LTSH), and Commodity Tracking Unit. See more: http://www.wfprelogs.org/Concept.asp

WFP uses COMPAS, an online commodity tracking system for their operation.


Through a series of negotiations some countries accepted the genetically modified food milled for human consumption only. Milling, bagging, and new distribution agreements were set up by ReLogS as well as the procurement of new food sources for future shipments.

Aid under these circumstances risks to be used as a political tool even by the domestic governments to enforce their agendas.


Public polls following the relief operation indicate that the opposition groups still felt that there was political manipulation of the aid on behalf of the ruling party. Further suspicions became stronger when a couple of years later the former head of CONASOL had been chosen to run by the ruling party for the 2004 presidential elections.
Humanitarian space is regulated by the principles and it exists both geographically and virtually. It is reinforced by the humanitarian agencies themselves, but in most cases defined by the belligerents and governments who do not always have the principles as guidelines (especially during conflict).


Wisner et al, op cit.

Wisner et al, op cit.

In their explanation of the PAR Model, Wisner et al use the term ‘vulnerability’ in relation to people and their social condition (i.e.: gender, age, health status, ethnicity or race or nationality, caste or religion and socio-economic status) as supposed to areas, infrastructures or systems.

Source: Wisner et al, op cit


Technically, the development stage begins once the recovery work is done. Unlike the emergency relief operation, this is a much longer process of a couple of years that involves capacity building.

Comfort et al, 2001 (op cit)