

Natural Disaster Management and National Armies: A Comparative Look at Some Latin American Experience

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Approach. Introduction

This paper is part of the study conducted by RESDAL (Red de Seguridad y Defensa de America Latina) and aiming to provide some comparative experience from the Latin American region for decision-makers in Colombia studying how best to deal with public security and natural disaster risk management in the future now that so great change is occurring in that country where security matters are concerned.

This paper addresses specifically the experience of eight other Latin American countries in the area of the management of risks where natural disasters are involved. The intention is again to assist with Colombian decisions on how to best deal with this matter through a look at how other nations, with often similar contexts in many ways, have done so and are still doing so. Particular attention is paid to the role of the Army in each of these countries where such risk management is concerned.

It will seek first to show that there is long and significant experience in this field within the region and that there is far from a regional *tabula rasa* when this matter is addressed. At the same time, it will be clear that such experience is as varied as the highly divergent natural disaster contexts of the countries studied. A brief look will then be given to the armies of the regional countries insofar as that will be useful for the discussion of their roles later on.

An overview of regional experience in the application of public policy to the matter of risk management in natural disasters will then be given. This will allow us to link the nature of the military institution with the public policy context in which they are to work in the field of natural disasters and their management.

A brief look at each of the national experiences studies will be given so that the reader has a clear idea of both how those experiences may differ from that of Colombia but also where those experiences may be more useful for Colombia to study. The eight other countries involved in the study are: Argentina, Brazil, Chile, Ecuador, El Salvador, Guatemala, Mexico and Nicaragua, thus giving us a wide breadth of experience since those countries are found in the extreme north of Latin America, in Central America, in the northern Andean region, and

in the Southern Cone of South America. Colombia's geography, placing it at the very northern tip of South America, bordering on both the Caribbean and the Pacific, with Central America as a neighbour, and as very much an Andean nation, makes this breadth of experience especially relevant.

It will be possible thereby to bring together all this highly varied experience in a fashion useful for Colombians to analyse in order to see what parts of it may be helpful in their own national decision making.

2 Definitions, Myths and Realities

It is not proposed to spend much time and space on definitions in this section. Natural disasters are, alas, so commonplace in the modern world, and in the view of many scientists increasingly so, that their nature is only too well understood by the general public. However, it is still worth noting that in fact there are two types of major disasters, and not just the ones caused by 'nature.' There are of course also man-made disasters, also increasingly common in the age of nuclear power plant emergencies such as Chernobyl in the Ukraine in the 1980s, and others, of un-numbered ecological disasters ranging from massive oil spills like that of the Gulf of Mexico in the new century, to excessive ill treatment of the earth through highly damaging mining practices going on all the time.

Let us try to be clear as to the subject here. While not wishing to spend excessive time on definitions which are obvious to almost any reader, some shared definitions of key concepts are worthwhile. Here we will look very briefly at only three terms: *disaster*, *natural disaster*, and *disaster management*. Fortunately, the United Nations has accepted definitions which are normally used in this field. And common sense and experience reinforce them. Indeed, the UN termed the 1990s as the decade for improving our capacities to deal with natural disasters, and especially our ability to address their challenges at the international level. This was called the International Decade for Natural Disaster Reduction and was aimed at the implementation of the strategy laid out in General Assembly Resolution 54/219. At the end of that decade, in 1999, an agency was established, the UN International Strategy for Disaster Reduction (UNISDR), with its secretariat based in Geneva. The global arrangements for dealing with these phenomena were further developed with the Sandai Framework of 2015, a 15-year voluntary understanding regarding disaster risk governance to manage disaster risk reduction. All of this progress has led to common understandings as to what is meant by these terms.

The accepted UN definition for a disaster is a 'serious disruption of a community or society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic, or environmental losses and impacts.'¹ The Oxford Dictionary defines a *natural disaster* as 'a natural event such as a flood, earthquake or hurricane that causes great damage or loss of life.' The UN uses this very simple definition of a natural disaster: 'a major adverse event resulting from the natural processes of the earth.' The third key term to be used throughout this report is *disaster management*, defined by the UN as "the organisation, planning and application of measures preparing for, responding to, and recovering from disasters.' Thus, we are far from the debatable and often difficult discussions around such terms as defence, security, and public security when we speak of natural disasters and responses to their occurrence. Accepted usage is generalized to a degree which makes it easy to use these terms although sometimes with nuance as with the addition of the concept of *man-made* disasters.

While nations and national emergency services often make much of their capacities to both foresee and then deal with such phenomena, the reality remains that our vulnerability to these events is palpable and our ability to react daily visible as limited or even painfully inadequate. Even the most developed nations are almost helpless in the face of serious natural disasters such as major hurricanes, dramatic earthquakes, sustained droughts, large-scale flooding and their consequences. This is seen almost every day in homes across the planet as the nature of such events is increasingly well covered by the media.

Indeed, it must be said that our options for dealing with natural disasters are limited, to say the least. Improvements in seismic prediction capacities are exceptional and most welcome but in reality, earthquakes and tremors strike usually with little or no warning and societies are left merely to deal with their effects. Hurricanes are identified as tropical storms early on and followed meticulously and with great skill to discover their probable force, direction of march, and implications, but it must be said that despite major advances in several countries' handling of these events, relatively little can be done except to endure them once they strike and make the best efforts possible to recover from them afterwards. Responses to tornadoes, droughts, floods, landslides, and most other natural disasters are not all that greatly improved in recent years from the practices of yesteryear. Even volcanoes tend to surprise us with their patterns of eruption.

¹ UNISDR (2009). *Terminology on disaster risk reduction*. Retrieved from <https://www.unisdr.org/we/inform/publications/7817>.

Little wonder, then, that national responses to these phenomena are still far from what societies would wish them to be. Instead, governments tend to do the best they can, or at least attempt to re-assure the public that that is what they are doing, in a field where costs are high, events largely immune to most planning efforts, and where history, even recent history, tells more sad tales than happy ones as to the results of our efforts in this field of endeavour. And with the impact of climate change constantly more present, it is difficult to be optimistic about our requirements in this field.

Natural Disasters in Latin America

A look at the international news on frequent occasions will underscore the first point here: Latin America is a region where both the frequency and the ferocity of natural disasters are worthy of note in comparison with many other parts of the world. The variety of such disasters is wide and their intensity is all too frequently very great indeed.

It is difficult to imagine a type of natural disaster from which the region escapes entirely. With very long littorals on both the Atlantic and the Pacific oceans, as well as on the Caribbean Sea, with vast river systems, giant mountain chains, deserts, great plains, and other geographical, climatic and physical features that make for populations vulnerable to such phenomena, the region's countries have seen essentially all of them strike at one time or another. While hurricanes, tsunamis and earthquakes are usually most shattering to human life and thus tend to capture the headlines; volcanic eruptions, landslides (*desprendimientos de tierra*), droughts (often brought on by the effects of *el Niño*), floods, tornados, tsunamis, avalanches, and other sources are all too well known in the region as well.

As Figure 1 shows, however, different parts of the region suffer different kinds of natural disasters, at least to some degree. And Figure 2 brings out the fact that not only sub-regions differ in the type and scale of disasters faced, but countries can be very varied in terms of what are those which cause them greatest problems and which seem to strike them less.

Figure 1
Natural Disasters
Latin America

	Landslides	Hurricane	Volcanos	Fires	Floods	Earthquakes	Droughts
Mexico	X	X	X	X	X	X	X
Central America	X	X	X	X	X	X	X
Northern Andean Region	X		X	X	X	X	X
Southern Cone	X		X	X	X	X	X

Figure 2
Natural Disasters
Latin America
By Country

	Landslides	Hurricane	Volcanos	Fires	Floods	Earthquakes	Droughts
Argentina	X		X	X	X	X	X
Brazil	X			X	X		X
Chile	X		X	X	X	X	X
Colombia	X		X	X	X	X	X
Ecuador	X		X	X	X	X	X
El Salvador	X	X	X	X	X	X	X
Guatemala	X	X	X	X	X	X	X
Mexico	X	X	X	X	X	X	X
Nicaragua	X	X	X	X	X	X	X

A Word on the Natural Disaster Contexts for these Case Studies

It is not the purpose of this section to give a detailed analysis of the national contexts of each of these countries but rather to allow the reader to have a general overview of which kinds of natural disasters affect which countries studied.

Argentina

Argentina is rather a special case in this series of countries. While natural disasters do occur with regularity, they are rarely of the cataclysmic nature seen in so much of the region. Floods in the country’s major river systems, avalanches, coastal or inland storms, earthquakes, and volcanic eruptions do strike the na-

tion but in no way can its vulnerability be compared with that of most Andean and Central American nations. Indeed, even when contrasted with neighbouring Brazil, whose vulnerability is also considered comparatively low, Argentina seems to be particularly blessed in this area of concern.

This, however, does not include man-made disasters such as de-forestation, from which this country suffers greatly. And such situations can have a major impact on the conditions for flooding, forest fires and other phenomena. The country also considers energy outages and the collapse of buildings to be natural disasters of potential importance.

Brazil

This largest of all Latin American countries suffers from a variety of natural disasters but, as we will see, is quite well organised to respond to them. They tend to be especially floods, landslides and droughts but also include forest fires. The major river systems of the nation are a particular source of concern.

It should be noted that Brazil and its armed forces have considerable international experience with natural disasters as well, having had both command and troop deployments in the United Nations force in Haiti for the massive earthquake of 2010 and the huge recovery effort engaged in after the event. In addition, on a permanent and non-emergency basis, there is a major role for the armed forces in Brazil in support of the rural programmes of Acción Cívico Social (ACISO). Much relevant experience is gained by headquarters, units and personnel through constant action in this field of support for vulnerable sectors of the population.

Chile

This southern Andean country is often struck by natural disasters, most dramatically by earthquakes and tsunamis, but in other forms as well. What Chileans refer to as their 'geografía loca' has meant that such a state of affairs could be expected. A great desert in the north, a major mountain range covering most of the country including some volcanos, extremely long coastlines lacking geographic depth in most of the south, and a far south which experiences extreme weather conditions of cold and wind as a matter of course: all these have meant that natural disasters have accompanied Chilean history from the beginnings.

Ecuador

Ecuador's wide variety of terrain and climatic conditions make for a context of quite high vulnerability to natural disasters. Landslides, volcanic eruptions, floods, earthquakes, and occasional droughts and forest fires strike the country with some frequency and often with great strength. The negative effects of 'el Niño' can be especially severe with damage to infrastructure often serious and loss of life significant.

El Salvador

This smallest of the Central American nations is considered one of the most vulnerable countries in the world to natural disasters. Especially vulnerable to earthquakes, the national territory also suffers from quite frequent volcanic eruptions. As if this were not enough, tropical storms of considerable severity cause flooding and landslides and tsunamis are a threat as well.

Guatemala

This Central American country is also very much a target for all manner of natural disasters. It suffers from volcanic eruptions, earthquakes, landslides, hurricanes and tropical storms, floods, and occasionally from droughts and forest fires.

Mexico

The main disasters which hit Mexico tend to be hurricanes or tropical storms, floods and landslides caused by heavy rains, and forest fires, with occasional volcanic eruptions, earthquakes, droughts completing the picture of the challenges the country faces in the field of disaster risk management. Mexico has also been active in assisting other countries, especially in Central America, with their recovery from natural disasters and this assistance, provided in large part by the army, has also gone farther afield in South America.

Nicaragua

In Nicaragua, another country in the 'anillo de fuego', the principle types of natural disasters tend to be earthquakes, volcanic eruptions, tsunamis, heavy rain causing floods and landslides, droughts and forest fires, many of which have been highly destructive.

General Thoughts on the Armed Forces and Natural Disasters

The armed forces of Latin American states tend to have a major role in the history and politics of their nations. This is usually the result of historical, political and social factors which, often inherited from their colonial past, have marked those countries in dramatic ways.

As always, it is important to be clear that Latin American states vary enormously among themselves and generalizations, as usual, are risky assertions to make. But in general Latin American armies either pre-date or are contemporary with national independence and, with few exceptions, respond to domestic and international contexts calling them into being.

These forces often began as constabulary bodies but in most cases took on roles of both national territorial defence in difficult sub-regional circumstances, and domestic roles fighting separatist tendencies, local *caudillismos* or other factors affecting their nation's stabilization and coming of age.

As in most developing states, governmental institutions were usually relatively weak and under-funded, especially in the early years of independence. But the nature of their centrality to the nation's survival ensured that the armed forces suffered generally less from such problems and developed into *relatively* strong and united institutions. Soon they were alone among state structures and institutions in having true advantages: strong discipline, unchallenged hierarchy and central authority, *esprit de corps*, exposure to modernizing influences, mobility, a strong belief in, and habit of, planning for the long term and the short, a wide range of capabilities within their ranks ranging from medical to pay services, postal to police elements, cooks to civil engineers, and much else in the logistics support field; constant further education and training throughout the careers of their personnel, public prestige, dispersal throughout much of the national territory, and a good level of fitness generally among members. No other institution of the state could claim such a range of advantages it could offer a government, especially in times of trouble.

If this were true in some senses across the board, how much more was it true in the security area? In common with many other countries across the globe, Latin American nations very frequently gave their forces, at least temporarily but often on a more permanent basis, police and other internal public security roles or those frequently considered the purview of customs services, border patrols, forestry services, VIP protection, the national intelligence service, civil defence organisations, and related bodies. Because of course the armed forces also had two other advantages governments equally often needed: they were not only *armed* but also *available*. And in difficult security circumstances

for governments, such an institution very often proved the only one that could, even temporarily, resolve or at least control the security situation of concern.

It was not that governments, especially democratic ones, failed to understand that under ideal circumstances they needed police and other security forces that could do a better job on these other specialised tasks than could the armed forces, while also allowing the avoidance of some of the pitfalls of the excessive use of the military in such missions. Rather, it was that in particularly urgent security conditions, the rule was that such other forces simply did not exist or were not up to the job at hand. The argument in the emergency of the moment ran: 'The army would not do the best job. But it would do the job.'

Thus the armed forces' roles expanded, or at least remained, ones that included large and often open-ended missions in support of the security requirements of the nation, whatever the political dangers of such a state of affairs. The land force, the army, was of course key in all of this. It was the largest force, the one most spread out through the country, the one most closely connected with local conditions, the one whose job was least technical and most related to population and territorial control, the one usually closest to the capital, and in every sense vastly more influential than the navy, or more latterly, the air force, or even the two other services combined.

If in NATO, British Commonwealth and many other countries, the Navy is almost always considered the 'senior service', such a state of affairs never applies in Latin America, not even in more maritime-minded Chile. The Army in the countries of this region is always considered the senior service and not just in traditional terms but in highly political ones as well.

The Army can provide all manner of security services if required, even if not at the level of efficiency of potentially more specialised bodies. In the area of natural disasters, the Army is, however, particularly well-structured to answer emergency calls for its employment. It has medical services, as mentioned, but it also has military police as members of the force. It does evacuation as a natural part of its exercises and operations, even of a traditional military combat type and has the personnel transport means, usually including heavy transport trucks, to do this on a major scale. It feeds large numbers of people in the open air as a matter of course and usually has great flexibility to feed more. It has water supply vehicles in large numbers to supplement this feeding capacity. It houses in all weathers large numbers of people and is as at home in tents as in more solid constructions. In addition, it holds uniforms and other clothing produced for harsh weather conditions and often has stocks of such apparel for

emergency situations. And for rescue and recovery needs, it normally will have in its inventory not only heavy engineering vehicles such as bulldozers, but also the trained, disciplined, fit and organised personnel to use them.

Even more dramatically, its personnel are accustomed to work under difficult circumstances, to do so in the heat, cold or wet, and to do so as ordered. Their discipline makes them ideal workers in times of emergency, accustomed as they are to little sleep, going without any kind of rest, working 24-hour shifts, and doing so in often dangerous contexts. Hierarchy, regimental or service pride, the custom of planning: all go into the mix to provide a large and flexible manpower and equipment base normally undreamt of in civil society or other elements of the state apparatus. It is hardly surprising, then, that no country excludes the use of their armed forces, and especially their army, from a role in natural disaster relief, if need be.

Little wonder, then, that the list of roles assigned to the armed forces of the region's states, where natural disasters are concerned, can be so long:

- Alert services
- Search and rescue
- Establishing and maintaining communications
- Re-establishing general communications
- Coastal and maritime transport and other support
- Air photography to assist decision-making
- Attention to the affected population
- Evacuation of populations prior to the disaster
- Evacuation of injured during or after the disaster
- Provision of emergency health services
- Feeding the affected population
- Housing temporarily the affected population
- Air and maritime transport of relief cargo
- Air transport of authorities
- Mapping of affected areas for purposes of relief

The 'existentialist' crisis of Latin American militaries in recent years, referred to in the section of this report on public security roles for the army, is not at all acute in military attitudes to assistance to the state in times of natural disasters. The armed forces as a whole, and the army in particular, take as a matter of course that they will assist local communities and the wider nation when struck by natural disasters and that their natural advantages, referred to above, make this so obvious a role as to not require discussion and certainly not debate on the matter.

What has been present is that, given the wider questioning of the utility of armed forces in the modern world, and of enhanced inter-American or at least improved sub-regional cooperation in defence, the armed forces have often felt that their permanent role in natural disasters needed to be stated with more force to remind public opinion, and especially politicians, of this vital area of national well-being where the need for their assistance is so palpable. Army Commanders' Conferences in the hemisphere and its sub-regions are often at pains to reinforce this public perception of institutional usefulness here, and to deal with the responses to natural disasters as a priority of national defence institutions and not just an activity in which they naturally, and permanently, involve themselves.

3 Tendencies

In some countries, the context described above has brought about changes in military priorities, use of budgets, organisations and structures, the creation of new units, doctrine and training, and much else. In most, however, truly major change remains to be seen. Armies cling to traditional roles of national defence in almost all countries. Even where in reality that concept, especially that of external defence being their key *raison d'être*, has frayed considerably in recent years or indeed was never really the case, the military ethos is so tied to external defence against the nation's enemies that the strong preference in the officer corps is to retain it as the central element of the institution's being. This ethos of course continues to carry the most dramatic impact on training, weapons and equipment acquisition, education, doctrine, deployments, logistics, and the rest.

In this situation the role of natural disaster preparation, mitigation, and recovery is considered important, useful for public prestige purposes, and of value

to the nation and the institution, but usually not as central to the self-image of the forces. The role remains much more simply something 'one does' because one is there, one has the capability, and one has the duty to undertake it when needed.

In many countries there is also currently a more determined intention to reduce the impact of natural disasters through state action, and also often a more demanding public that demands that such should be the state policy in this area of widespread if sporadic concern. If this is true globally, it is especially true in Latin America where, as we have seen, natural disasters are so common.

In this regard, there is a trend towards trying to bring national resources to bear with more efficiency to assist the local communities most hard hit by the disaster in question. This leads to the accompanying trend to attempt to coordinate national responses through government or government-led agencies and specialised institutions. In almost all cases in the region, this effort is accompanied by a desire to ensure better use of civilian and other security sector institutions in more balanced inter-agency cooperation with the traditionally dominant armed forces. All of this is of course reinforced by the perception of an increase in the number and ferocity of natural disasters as a result of climate change.

The means by which this is attempted are varied and range widely from country to country but it is nonetheless true that the trend is definitely towards agencies of inter-agency control in which the armed forces play a major role but not, at least in theory, the dominant one. This has proven a positive tendency in several cases in the region when a disaster has been foreseen or has actually struck. Police and forestry services, coast guards, fire brigades, housing and health ministries, local governments, transport services, foreign ministries, and a host of other agencies, including on occasion private businesses, have on occasion been brought into the debate and even into the planning and execution of plans for improved preparation, mitigation and recovery from disasters although it must be admitted that so far progress has been slow in part because of the usual question of limited resources, especially of a financial kind.

Another trend of note is that towards regional or sub-regional cooperation in dealing with natural disasters, especially with their immediate and longer-term consequences. In the more distant past, there was little thought given to this and countries more or less faced such disasters on their own and with their own resources. As modern media made such events better known outside the affected locality, however, and as modern logistics possibilities made bringing assistance from afar more practicable, the trend became one of the major pow-

ers, but most frequently principally the United States, using its considerable strategic lift, both aerial and naval, to assist the stricken country.

In more recent years, however, and as part of the wider trend towards sub-regional cooperation, Latin American nations themselves have increasingly come to the assistance of their neighbours and regional partners. Regional blocs in the Andes, the Southern Cone, Central America, and the Caribbean have sought to reinforce their capabilities in assisting those countries hit by disasters. Central to all of this effort is again, not surprisingly, the armed forces of the assisting nations and in particular their air forces and, on occasion, their navies. The efforts of Mexico in the face of natural disasters striking Central American countries is especially noteworthy in this regard, a practice now practically a tradition and which had an unusual element in the deployment of those same capabilities to assist the United States when Hurricane Katrina hit the southern part of that country. Now the nations of much of Latin America almost as a matter of course, and following arrangements largely hammered out beforehand, come to the assistance of their friends when needed and the armed forces are the key element in the prompt arrival and distribution of this aid.

Public Policy and Natural Disasters

The range of treatments given by public policy to the question of dealing with natural disasters and latterly managing the risks associated with them is wide indeed. It is worth reminding oneself that until well into the 19th century, the element of government tasked with such activities was often still local government, and not its national or provincial level and this was still the case, incredible as it might seem, in countries as developed as Great Britain or those of much of continental Europe. This is perhaps worth keeping in mind when one is tempted to be especially judgemental of Latin American experience in this field.

It is true, however, that for many reasons, many Latin American governments, despite the dangers, have been quite slow to organise adequate responses to the challenges of risk management in the area of natural disasters. What one observes now is a complex set of arrangements, at local, provincial/state/departamental, national, and indeed international levels, some more on paper than effectively deployed or in readiness to be deployed, and some more impressive in their planning, resources, and organisation.²

² At the inter-American military level, cooperation in natural disaster management has seen the Organisation of American States, through its Committee on Hemispheric Security, make recommendations to member states as to how to move forward in this area. In addition, the Conference of Defence Ministers of the Americas (CDMA) has debated cooperation in this field ever since the VIII Conference in Banff, Canada in 2008. And more specifically to the land forces, the Conference of Army Commanders of the Americas has had the question of improved natural disaster cooperation as an agenda item going back to its XXVII Conference in 2006-7.

This state of affairs will be seen throughout this paper. At this stage, it will be important to understand the breadth of different approaches seen in the eight nations studied. These can be seen in the differences in approach manifested in:

1. The juridical framework for such risk management and related operations and its high-level organisation
2. The leadership arrangements made among the agencies involved
3. The Political Context
4. Applicable Doctrine
5. The Organisation of Risk Management
6. Education and Training

The Juridical Framework and High-Level Organisation

As might be expected from countries which share so much in historic, linguistic, cultural, and constitutional and governmental terms, and in countries all of which have republican institutions and strong legalistic traditions; there is much in common among the legal frameworks of the countries studied where risk management in the face of natural disasters is concerned. Most constitutions arrange for the addressing of matters arising from states of emergency caused by natural disasters within the nation and some even for those outside their borders. These are differently termed in the nations of the region and may be described as states of *emergency*, states of *siege*, states of *exception*, or even states of *defence*. But it should be made immediately clear that this executive power does not necessarily mean that there are not specific regulations as to the use of the armed forces once this decree is issued. This reflects of course the difficult history of civil-military relations in almost all countries of the region and their special problems during the early second half of the 20th century.

While in Argentina no 'state of exception' can be declared by the President without the Congress approving, at least when that legislature is in session, this context is a special one in Latin America. In neighbouring Brazil, for example, 'natural calamities of great proportions' can be the causes of a national emergency being declared by the head of state and Congress only needs to approve after a given period of time.

In Chile the President may on his own authority issue a decree declaring a 'state of catastrophe' because of what he views as the occurrence of a 'public calamity'. He need only at first inform the legislature of his decision and the measures he

has ordered to be taken, but if the decree and its measures are applied for more than a year, then they must be approved by the legislative branch of government.

In Ecuador, the same applies when a natural disaster is deemed to have occurred. The National Assembly must be formally informed by the President of this state of affairs and can at any time revoke the decree. In El Salvador, the declaration of a state of exception is the prerogative of the President of the Republic but also that of the legislature and if constitutional guarantees are suspended, that legislature must approve if declared by the President. In Guatemala as well, the President has the power to issue a decree declaring a 'state of public calamity' but Congress may subsequently overturn or modify that public declaration.

Mexico's situation in this regard is similar in that the President can declare a state of affairs where it is deemed by him that 'society is in grave danger' but it must have Congressional approval. In Nicaragua, a 'state of emergency' may be declared by the President in the case of natural catastrophes but here again the legislature has the power to approve or not the declaration, or to modify it if it sees fit.

Colombia is thus in line with generally applied Latin American practice in this regard since the President here too can consider that a 'public calamity' constitutes a reason for declaring a 'state of emergency' but the Congress will then rule on its applicability and that of the measures taken by the executive.

These constitutional arrangements are supplemented by all manner of legislation relating to the use of the armed forces, and particularly the army, in assisting with dealing with natural disasters. The institutional nature of these arrangements is normally based on one or more of the following ministries: *Gobernación*, *Seguridad*, or the Presidency itself. Only in Guatemala does one find the Ministry of Defence as the actual formal coordinator of the national response to disasters, while in Argentina and Mexico it is the responsibility of the Ministry of *Seguridad*, in Chile of *Interior and Seguridad Pública*; in Brazil of the Ministry of Integration, in El Salvador of *Gobernación and Desarrollo Territorial*, and in Mexico of *Gobernación*. In Ecuador there is de-centralization down to a *Sistema Sistema Nacional Descentralizado de Gestión de Riesgos* while in Nicaragua, there is a somewhat similar decentralization from the Presidency down to the Vice-Presidency.³

³ These arrangements are laid out in Argentina (Ley No. 27.287, 20/10/2016 and Decreto No. 39/2017, 13/01/2017), in Brazil (Ley No. 12.608, 10/04/2012), in Chile (Decreto Ley No. 369, 18/03/1974 and Decreto No.156, 12/03/2002), in Ecuador (Decreto Ejecutivo No. 42, 10/09/2009), in El Salvador (Decreto No.777, 18/08/2005 and Decreto No.56, 24/05/2006), in Guatemala (Decreto Legislativo No.109-96, 06/11/1996; Acuerdo Gubernativo No.49-2012, 14/03/2012, and Acuerdo Gubernativo No.06-2011, 18/05/2011), and in Nicaragua (Ley No.337, 07/04/2000; Ley No. 863, 19/05/2014; Decreto No. 53-2000, 28/06/2000; Ley No. 748, 13/12/2010; Ley No. 181, 02/09/1994; Ley No. 855, 11/02/2014; and Ley No.334) See national chapters of this report, and RESDAL (2016). *A Comparative Atlas of Defence in Latin America and Caribbean*. Buenos Aires: RESDAL.

Here again Colombian practice does not differ to any degree from the formal legislative arrangements found in other regional countries.

Figure 3

Under these ministries and higher government bodies function the agencies actually charged with attending to natural disasters. These are in each national case:

Argentina:	Secretariat for Civil Protection and Emergency Management
Brazil:	Secretariat for Protection and Civil Defence
Chile:	National Office for Emergency - ONEMI
Ecuador:	National Risk Management Secretariat
El Salvador:	General Directorate of Civil Protection, Disaster Prevention and Mitigation
Guatemala:	National Coordination for the Reduction of Natural or Man-made Disasters
Mexico:	National Civil Protection Council
Nicaragua:	National Committee for Disaster Prevention, Mitigation and Response

The legal documents mentioned sometimes also spell out the conditions for the service of the armed forces in support of the national effort preparing for, mitigating during, and subsequently recovering from natural disasters. At the highest official level, this makes for a wide divergence in the formal way the armed forces play into the national plans of action although, as will be seen, this may be more in appearance than in reality. It is worth spending some time here on national cases as they underscore this diversity in approach.

In Argentina, for example, a *Subsecretaría* of the Ministry of Defence and the *Estado Mayor Conjunto* are charged with the responsibility for the conduct and coordination of operations and activities of the armed forces, when they are called upon to work in the field of natural disasters and this is done within the overall effort of the *Ministerio de Seguridad's Secretaría de Protección Civil y Abordaje Integral de Emergencias y Catástrofes*. In the past, the armed forces had the central role in this area but for reasons related to the difficult civil-military relations the country has known, this quickly ceased to be the case with the return of democracy to the country in 1983. Their return to a significant if not dominant role in natural disaster management has been quite steady over the last few years.

In Brazil, the Ministry of Defence forms part of the CONPDEC (*Consejo Nacional de Protección y Defensa Civil*) which, as shown above, is responsible

to the Ministry of Integration through that ministry's *Secretaría Nacional de Protección y Defensa Civil* and its *Sistema Nacional de Protección y Defensa Civil* (SINPDEC). The MOD coordinates the involvement of the armed forces in support of the national or regional (state) response to a disaster. As a rule this involvement occurs when federal and/or state police and fire brigade services are inadequate to the task.

As in so much else in the security field, Chile is an exceptionally interesting country to study for its approach to disaster risk management as well. As with most other countries it has constitutional arrangements regulating states of emergency that may arise and the use of the armed forces and elements of the Ministry of Interior during them. Articles 39-41 of the Constitution refer to 'estados de excepción' which can include 'emergencias y calamidades públicas.' Earlier legislation covering this field of endeavour has been brought up to date over the last half-century through a series of laws and decrees. These are principally Law 16282 of 1965 (fixing actions to be taken in case of earthquakes and catastrophes), Decreto Ley 369 of 1974, the latter's revision in Decreto Ley 509 of 1983 (clarifying norms of action to predict disasters and assist recovery), and Ley 18415 (*Ley Orgánica Constitucional de los Estados de Excepción*) of 1985 (revised in 1991).

Through these legislative acts, ministries, and especially the Ministries of National Defence and the Interior, are assigned the responsibility to make a plan for emergencies that might arise, to develop a programme to coordinate human and material resources from public services and private and public assistance agencies, and to advise the competent authorities of critical problems that need to be addressed.

The 1974 Decreto Ley created an *Oficina Nacional de Emergencias* (ONEMI) which is responsible to the Minister of the Interior to operate the *Sistema de Protección Civil*. In original fashion, the armed forces are represented at the communal, provincial and regional levels of both the *Comités de Protección* and the *Comités de Emergencia* and take part in the planning for such events. They are thus well placed to take part, as required and according to the severity of the situation, to bring their resources to bear on the event as part of a 'first-call' intervention of state services beginning with the Carabineros but quickly including the forces as required. When a more local level of the state finds it is incapable of dealing with the demands created by the emergency, it can use the ONEMI to request further assistance, including that of a greater involvement of the armed forces through the Joint Chiefs of Staff, in the events.

ONEMI was given the role of planning and coordinating resources in case of catastrophes, of creating regional emergency centres, of stocking emergency centres with required stores, of working with military and other agencies in the field, and of stimulating research into prevention of disasters, reduction of their effects, and recovery from them. Decreto Ley 509 clarified in more detail these dispositions.

The nation's territory is divided into communes, each with a Commune Emergency Committee, made up of representatives of all agencies concerned and of a military member. It is interesting to note that considerable detail is given to each other agency in terms of its responsibilities in dealing with these phenomena, but in the case of the armed forces, the military are left with flexibility in how they will organise their own responses.

Chile's reputation for quick response to natural disasters is linked to these measures. The armed forces, and especially the army, are central elements of the procedures in place in order to deal with disasters. When they occur, as in the various earthquakes and tsunamis of recent years, the army has received great public gratitude and support for its role in dealing with events. Indeed, if any public criticisms surfaced on this matter, it tended to be about the time the president of the republic needed in order to bring the military into the national or local disaster relief effort.

The arrangements in Ecuador, while very different from those of Chile, are also original in a number of aspects. At the legal level, we have seen that there is a *Secretaría Nacional de Gestión de Riesgos* established by the *Ley de Seguridad Pública y del Estado* of 2009. Its work is part of the programmes supporting the five pillars of the highly wide-ranging concept of Integral Security which include, in addition to Risk Management and Environment, *Defensa y Relaciones Internacionales*, *Seguridad Ciudadana y Justicia*, *Soberanía Tecnológica y Ciencia Aplicada a la Seguridad*, and *Inteligencia Estratégica*.

In the field of disaster management, the armed forces deploy, through their manpower and equipment resources as well as their presence in such a large part of the national territory, the often crucial elements necessary for mitigating and recovering from disasters. The *Secretaría de Gestión de Riesgos* is in reality responsible for designing policies in this area and of coordinating the action of all the institutions of the state when disasters strike.

In El Salvador as well, the overall direction of disaster management is in the hands of civilian authorities but the armed forces are authorised to take part

in the confronting of disasters and in the management of their effects. While this authorisation was formally given in Article 211, Inc.4, of the constitution, in fact the vulnerabilities of the country to all manner of natural disasters has meant that the armed forces were always considered an essential element of any response to these phenomena. The *Ley del Sistema Nacional de Protección Civil* lays out the arrangements for the use of the military in this area, not only at the national but also at the departmental, municipal and community levels. The *Plan Nacional de Protección Civil, Prevención y Mitigación de Desastres* ensures the participation of the armed forces in six of the seven sectoral commissions wherein their role is a support one, whereas in the key commission dealing with logistics, they are the chief coordinators of its activity.

Guatemala finds itself at some distance from most of these other approaches to the military role in natural disaster management. In this country the armed forces' role is central at every level of this field of endeavour and they are themselves directly responsible for the proper functioning of the national system as a whole. The Ministry of Defence is the highest authority of the national system and has created an actual *Unidad de Gestión de Riesgos* as well as an *Unidad Humanitaria de Rescate* to assist any efforts in disaster relief where they may be needed. It also maintains permanent liaison with the *Coodinadora Nacional de Reducción de Desastres* (CONRED) at national, departmental and municipal levels permitting it to integrate national responses to these events. All of this is aimed especially at ensuring rapid response to disasters and then proper national follow-up.

In Mexico the constitutional arrangements for the armed forces in general, and for support for natural disaster preparation and relief in particular, are governed in general by the Organic Law for Federal Public Administration of 1978, the National Security Act of 2005, the General Law of the Public Security System of 2012, and the General Civil Protection Act of 2014, all of which have been amended from time to time. The National System of Civil Protection (SINAPROC) is responsible for the protection of the civil population in case of disasters and it can call on the assistance of state and local governments as needed. In addition, it has the ability to call on military assistance for its activities.

The National Defence Secretariat (*Secretaría de Defensa Nacional* or SEDENA) has an operations plan, DN-III-E, which provides guidelines for such military activities in assistance to civil authority in case of disaster. SEDENA is responsible for both the army and air force elements of national defence. The Navy Secretariat (SEMAR) has a similar plan for maritime and riverine situations and for its contribution to the larger defence effort in this area.

In Nicaragua, the management of risks is under the direct control of the Vice-Presidency, a situation not seen elsewhere in our group of countries of study. Under it is the *Consejo Nacional de Prevención, Mitigación y Atención de Desastres*, made up of the Minister of Defence as well as the Commander of the Army, as well as the top leadership of the National Police, Foreign Ministry, Finance Ministry; Development, Industry and Commerce; Health; Transport and Infrastructure; Environment and Natural Resources; Family, Education, Culture and Sport; and the *Instituto de Estudios Territoriales*, this last responsible for monitoring natural events. The Red Cross and some other non-governmental agencies also take part.

In 1994, the *Código de Organización, Jurisdicción y Previsión Social Militar* was passed into law and supplemented constitutional arrangements (Section 92) for the use of the military in natural disasters and other emergency situations, on the order of the President of the Republic. The *Ley de la Defensa Nacional* provides a further legal basis for the forces having a major role in the prevention, mitigation and management of natural disasters.

While there is no specific policy for such disasters, there are plans for prevention, attention and mitigation of them. Initial reaction is the responsibility of the Army through its Estado Mayor de la Defensa Civil which has a *Centro de Operaciones de Desastres* (CODE) and the specifically tasked *Unidad Humanitaria de Rescate* (UHR).

Doubtless owing to the close historic ties between Nicaragua and Cuba, and interest in learning from Cuba's exceptional successes in this field, the Army's role here too is to undertake search and rescue missions, give assistance to the affected population, evacuate those at risk, give emergency medical assistance, and transport the victims to centres of assistance. The National Police are tasked with ensuring the security of affected people and of their belongings while the impact of the disaster is being felt.

It is a presidential responsibility to control the operations related to a natural disaster but in practice the Army has the responsibilities mentioned relating to evacuations, emergency health, and search and rescue while the Police have those of a security nature. This is a reality but does not find public expression in any legal way. In the recovery phase of a disaster, reconstruction is the responsibility of the *Ministerio de Transporte e Infraestructura* and the Army's role, while possible, is not normally a major one.

The Political Context

As might be imagined, the majority of those Latin American countries studied, in contrast with the discussion in this study of the military role in public security, have rather similar political contexts when the question of risk management of natural disasters arises. Public opinion is almost always concerned, to one degree or another, with the question of natural disasters. And while this differs markedly among the nations studied, as some are felt to be highly vulnerable to such events while others do not seem to be at the same level of vulnerability, it is fair to say that not only is public opinion frequently engaged in the subject but it is also overwhelmingly in favour of using all the means available to the nation (and indeed those of the international community as well) in forecasting and planning for these events, and in combatting their effects after they have struck. Thus the question of the armed forces, and especially the army, acting as a major player in dealing with such disasters is not usually a matter of concern.

While there have been public reactions to an excessive role of the armed forces in this field, these have been few and far between and in general the attitude to such military interventions is positive and, if anything, asking for more such action rather than less. It should thus not surprise us that in almost all White Papers on Defence (policy statements of the defence ministry in question), and other statements of defence policy and administration, there is at least some mention of this role of the national armed forces.

The exception to this more or less general rule is in the matter of recovery from such events. In some countries, some press and business reaction has been negative when army engineers, for example, get the job of re-building destroyed or damaged communities when it is felt by some, especially in the private business sector, that civilian contractors could do just as good a job or better and that the armed forces work in such fields with advantages against which it is difficult for private companies to compete.

Lower-Level Organisation

As seen, there are widely divergent high-level organisations tasked with dealing with natural disasters in the countries discussed here. At both these higher and lower levels of organisation, there has been in recent decades a trend to setting up agencies to coordinate the efforts of public and, even occasionally private, preparation efforts, and even more so in doing this with relief operations. The

results are mixed in terms of kinds of organisations involved, resources deployed to them, and even more so in terms of their efficiency on the ground.

Where the armed forces are concerned, some countries (Argentina, El Salvador, Guatemala, Nicaragua) have set up actual units of the armed forces specialised in operations in support of communities struck by natural disasters. These initiatives, when supported with required levels of resources (transport vehicles—both local and long distance; and air and sea transport means; medical personnel and supplies, communications; manpower, etc.), can give meaningful results. But they tend to be more practical for smaller countries where one, or at best a small number of such units, can reach most of the nation's territory in a practical time frame.

Other countries, most notably Ecuador, have given all their units a permanent role in support of natural disaster management and there is some degree of training in this role for all. Most countries have, however, continued to act along the lines of the traditional belief that a well-trained and disciplined army can use all or almost all its units that can be made available to a disaster relief operation in such an effort and that specific training or organisation of units for such tasks remains either unnecessary or impractical. Almost all have nonetheless established commands, secretariats, or other elements of their ministerial and/or armed forces headquarters (national and regional) to oversee the activities of their forces where natural disaster management is concerned.

Doctrine

In the area of doctrine for dealing with such events, the breadth of experience, and difference in approaches, in no way reflects the generally shared attitudes and legal framework outlined above. In some countries there is no visible doctrine in dealing with such phenomena at all while in others it is either embryonic or hardly worthy of the name.

Thus exercises, even when held by the various agencies involved, usually lack doctrine as to how to proceed. That doctrine likewise is usually particularly lacking in the area of addressing inter-agency cooperation. While here and there one sees attempts to address this failure, it remains a major challenge for most states. Into the kind of situation that these difficulties spawn the armed forces again remain the almost automatic institution to which governments turn to address, as best they can, the results of natural disasters striking localities, regions, or indeed in some cases virtually their whole countries.

Exceptions can be considered even more interesting as a result. In Brazil, where constant cooperation between the police, fire service and armed forces has existed for a very long time, and where its organisation and resources are impressive, there has been a degree of doctrinal development at the level of the Sistema Integrado de Información. To some extent this has been linked to contingency planning done by them but it is also the result of cooperation on a constant basis in ACISO, the civil social action programme.

In El Salvador, the *Comando de Doctrina y Educación Militar* is responsible for the education and training of the armed forces for their deployments and activities in case of natural disasters. This body organises annual exercises and simulations not only for the army but for other agencies of the state with responsibilities in natural disaster management and these have required the development of limited doctrine as well. In Nicaragua, the armed forces role as head of the national effort in natural disaster management has stimulated the *Estado Mayor de la Defensa Civil* to undertake permanently training and conduct exercises in support of natural disaster management. Here again, this training is not only for involved armed forces personnel but also for other responsible state agencies as well, and has likewise occasioned the development of limited amounts of doctrine.

Education and Training

As one might expect given the diversity of approaches and organisations involved, and of course the absence or near absence of doctrine, training and education in dealing with natural disasters has suffered much in most of the regional countries studied here. With few exceptions there is virtually no specific training addressing natural disasters. The tradition in the armed forces is that the military institution is by its nature able to respond to such events and that its inherent capabilities, and especially its organisation, manpower, discipline, long-established chain of command arrangements, communications and equipment, automatically make this so, and thus, that training specifically targeted to dealing with natural disasters is difficult to conduct, would be time-consuming, excessively task-specific, and to some extent even unnecessary. The soldier, sailor or airman is prepared to act in unforeseen circumstances bringing his or her skills and equipment to bear on whatever context in which the armed forces find themselves and that general training is the best guarantee that they will be efficient in natural disaster relief as well as their other tasks. This is a general view held in all countries studied although of course

it is different in those where there are units with special roles assigned to them in the field of disaster relief.

If there is little or no training in the armed forces, and even in most cases in the armies of the region, it has proven even less likely that there would be much in other agencies. Rescue agencies such as fire brigades are of course well trained in dealing with fires and sometimes with massive fires of natural disaster levels. As would be expected, other specialized emergency agencies are prepared for their roles in such events. But with the exception of larger and more developed regional states it must be admitted that training for large-scale disasters is still at an embryonic stage despite the limited examples given above. This is largely due to resource restraints such as manpower, equipment, ability to deploy over long distances, and lack of adequate communications. So far in most states the urgency of the matter is accepted but the means to address it is still a major obstacle. Training must suffer from such a context.

4 Conclusion

It is important to emphasise the positive here. The fact is that the national systems for natural disaster management, at preparation, mitigation and recovery levels, are greatly improved when compared with what they generally were only a few decades ago. In those earlier periods, in essence the armed forces *were* the national response to such events and did what they could to help largely in a vacuum where other national agencies were concerned.

Now there are real efforts being made to ensure more coordinated and truly national responses to these challenges, often with the armed forces in an important but purely support role, at least in theory. As seen, most countries studied have developed governmental and other structures to make for a more efficient inter-agency handling of these events.

It must nonetheless be underscored that in no country has it been possible to relegate the armed forces to a truly secondary role in this field, even where that was the hoped-for result of the civilian governments of the time. The armed forces are such an obvious source for a 'first-response' to natural disasters, favoured as they are by the long list of advantages they offer to government and which were listed at the beginning of this paper, that this is not possible. It is

even less possible in countries, such as those studied, where other governmental institutions are less dispersed across the national territory, less accustomed to planning, less well equipped with materiel of direct utility to these activities, less disciplined, and less given to supporting difficult conditions of work.

The armed forces, and the army, remain *a* or *the* central pillar of the national responses to natural disasters in all the countries studied. This is less so where nations dispose of large police, fire brigade, and related services, at national or more regional levels, but is true still in all. As in so much else, armies do not necessarily do the best job in dealing with natural disasters, but they do the job.


- Lessons Learned**
1. In all countries studied there exists a juridical and constitutional array of instruments and authorities which permit for the use of armed forces in support of the national effort to prepared for, mitigate the effects of, and recover from natural disasters. While this is necessary, the use of the military is not always covered by appropriate legal instruments to protect the actual personnel used in this way.
 2. The political context for such efforts is a positive one for the army wherein in all countries one sees widespread and nearly unanimous support for this involvement in the army and indeed a preference to see more, not less, of it in this field. This relates to the general public and governmental view that one is likely to see more and not fewer such phenomena in the future given climate trends worldwide.
 3. The only complaint of substance can be related to the slowness of civilian governments in calling for the armed forces to help, and not in the fact that they respond to such orders and that is also worth addressing in many countries.
 4. The armed forces, and especially the army, have a permanent and well-appreciated role in facing natural disasters in all the countries studied. And it has been confirmed that this is an essentially worldwide context for their action and not limited to the countries studied.
 5. Their training, discipline, numbers, hierarchical structure, customs of obedience, traditions of service under any harsh climatic and other conditions, mobility, equipment, organisation, experience, physical fitness, communications, wide-ranging capacities internal to their structure, exceptional deployment throughout the territory of these nations, armed status and availability make them a body unmatched by any other in terms of their utility in such natural disaster-related operations.
 6. Even where countries have attempted to reduce or even eliminate this role from those assigned to the armed forces, they have returned to their use in a short period when natural disasters actually loomed or struck.

7. With proper doctrine and training for all involved, the armed forces can be most useful as *part* of a nation-wide, *multi-agency* response to these phenomena. Under those conditions, it is helpful in many regards to have the armed forces as a part of the response but under civilian direction.
8. The trend is to establish such organisations but they are not often fully able to engage in the task at hand, for resources difficulties or for lack of government support at any of a number of levels.
9. The use of armed forces in dealing with natural disasters is not the ideal response to them but is an emergency reaction without which it is difficult to imagine success in dealing with the problems caused by these events.
10. If they are not to be used, there must be a 'first-response' capability built into another agency of the state and so far only relatively wealthy countries have been able to contemplate this, usually by the reinforcement of the police, fire brigades or both.
11. As is to be expected, training in inter-agency responses has paid dividends
12. The lack of doctrine, especially for inter-agency activities in this field, is a serious issue needful of addressing
13. The creation of specialized units within the armed forces to help deal with natural disasters is so far the experience of a limited number of countries. But when the country is small and the zones of probable disaster accessible, and when appropriate resources are given to those units. They can be of considerable utility. In general, however, armies have tended to remain convinced that the best way they have of contributing meaningfully to natural disaster management is to retain the advantages mentioned above which come from their continued central role of defence of the nation. It is difficult to argue with this conclusion since the results tend to be so favourable, even if not perfect.

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