MEXICO: FROM THE EARTHQUAKE OF 1985 TO HURRIACAINE

PATRICIA

CREATION AND EVOLUTION OF THE NATIONAL CIVIL PROTECTION SYSTEM

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The following lines present an overview of the Mexican case on lessons learned in the field of Civil Protection. These lessons have been refined and structured in a systematic way over the thirty years of existence of the National Civil Protection System (SINAPROC).

CREATION AND EVOLUTION OF THE NATIONAL CIVIL PROTECTION SYSTEM

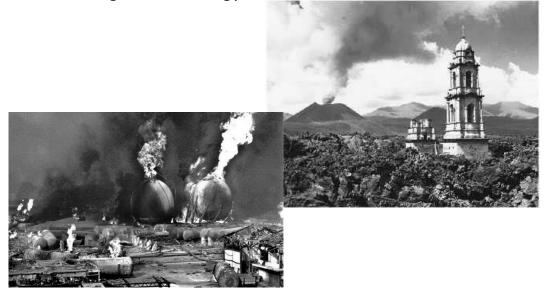
Mexico is located in the southern part of North America, within the intertropical convergence zone, bordered by the Caribbean Sea, the Gulf of Mexico and the Pacific Ocean; and rests up on several tectonic plates. Additionally, the country is crossed and surrounded by a considerable number of continental and regional geological faults. Given these geographical conditions, it is clear that Mexico is exposed to various natural phenomena which represent threats for the population, such as: earthquakes, hurricanes, floods, among others.



NATIONAL CIVIL PROTECTION SYSTEM

The National Civil Protection System is an instrument of interagency coordination composed, by organizations and divers government entities at the federal and local levels, from various social and private groups. Its aim is to create actions by agreement aimed to civil protection, in order to safeguard the life, the environment and heritage of society.

Some of the relevant events that set the precedents for the SINAPROC instrumentation were: the Paricutin Volcano Eruption in 1943, the floods provoked by the Panuco River overflow in 1966, the explosion of storage and distribution plants of liquefied gas in Mexico's City Metropolitan Area in 1984, and the earthquake of 1985. All of them contributed to reconsider the risk reduction management strategy in Mexico.



The strong earthquake of September 1985 deserves a special remark due to the serious infrastructure damage, and casualties caused by it in terms of human lives and destruction provoked in several regions of the country, particularly in the capital, Mexico City. The country has been tested several times by the frequent great magnitude earthquakes challenging us constantly as a society. Solidarity and quick response has been elements developed initially purely by the Civil Society. That is the reason why the 1985 earthquake set an unprecedented solidary response from an improvised civil society that fostered the creation of civil protection institutional mechanisms to stablish conditions that allow to react quickly and efficiently from the government institutions in case of disaster.



In May 1986 the National Civil Protection System (SINAPROC), was created as an interagency coordination instrument led by the President of the Republic and composed by entities and authorities at both, federal and local levels, as well as divers social and private organizations to create actions by agreement focused on civil protection in order to safeguard the life, environment and heritage of the society.



In that sense, given the commitment with the Mexican population, the various offices of the Federal Public Administration have implemented programs, strategies and policies, aimed to fully comply the SINAPROC objectives, for instance: Prevention Program Risk, consisting in funding actions to strengthen resilience in cities through the Ministry of Agrarian, Territorial and Urban Development (SEDATU); the implementation of Mexican Standards (norms) on education centers physical infrastructure belonging to the Ministry of Public Education (SEP); likewise, the Ministry of Health regarding Safe Hospital program, which aims to incorporate hospital units able to remain functional during and after a natural disaster; similarly the Ministry of Social Development (SEDESOL) after facing a natural disaster, installs and operates community kitchens in the affected regions and activates the Temporary Employment program to alleviate the victims situation. In the same way, the National Water Commission (CONAGUA) through the National Meteorological System provides information about the weather at the national and local scale to identify threats related to meteorological events that may affect the Mexican territory. These, are just some of the actions taken by the Mexican government to fulfill the objectives of SINAPROC.

MX Plan

In 2015, the Mexican Government launched the MX Plan aimed to strengthen the coordination among all the government institutions and agencies at all levels involved in **Civil Protection** issues. This, to reduce the response times, avoid overlaping functions, and address more effectively any given emergency. Likewise, to achieve its objectives, SINAPROC has implementation reauired the of various legal, institutional, technical, economic and social instruments. In this regard, as a proof of its evolution and consolidation, the first General Civil Protection Act (LGPC, for its acronym in Spanish), was published on May 12, 2000. The LGPC laid the general guidelines for civil protection in Mexico with the vision of the Integral Risk Management (IRM) included as the quiding principle of SINAPROC. Through this approach, prevention and risk mitigation became the best way to increase **society's resilience** before the disaster scenario.



It is imperative to be aware that the underlying permanent risk factors: such as demographic abrupt shifts, climate change and the impact and effects of natural disasters that our country faces are greater than before. Thus the SINAPROC has networks of multidisciplinary experts to deal with emergencies and where appropriate; mobilize the right staff to provide effective response to the crisis.

For this reason, in 2015, the President of Mexico, Enrique Peña Nieto, launched the MX Plan, focused on strengthening the coordination of government agencies involved in civil protection, to reduce response times, avoid duplication tasks and meet more effectively any given emergency. This strategy allows aligning efforts, programs and purposes among the Ministers of National Defense with the **DN-III-E plan**, the Navy with the **Marina Plan**, along with specific programs implemented by the Federal Police, the Mexican State Oil Company (PEMEX), the Federal Electricity Commission (CFE), the National Water Commission (CONAGUA) and all institutions and agencies of the Mexican government committed and involved in Civil Protection.



Another tangible example of the crosscutting nature of Civil Protection Institutions in Mexico, is the coordinated and strategic attention given during the presence of disturbing natural phenomena such as the tropical storm **Manuel** and hurricane **Ingrid** registered in 2013; as well as in the cases of **Odile** (2014) and **Patricia** (2015) hurricanes. Furthermore, the latter was catalogued as the most dangerous and threatening phenomenon in the last 50 years and the most intense hurricane ever observed in the Western Hemisphere. It was thanks to the preventive actions implemented by the SINAPROC and the on-time-alert given to the potentially affected population that no great damage or casualties had place, neither any significant public infrastructure reported losses.



Regarding IRM, the main financial instrument that the Mexican government has to effectively and timely support the **rehabilitation of federal and state infrastructure as well as low-income housing** affected is the Natural Disaster Fund (FONDEN) instrumented for the first time in the late nineties.





The natural disasters of great impact that hit Mexico in recent history, led to the national dialogue on IRM disaster in such a way that the government of Mexico has strengthened its policy of Civil Protection. FONDEN evolved up to achieving funding post-disaster reconstruction, achieving by that the conjoint financing of all stages of the IRM cycle.

Keeping that in mind, in addition to the support that the Mexican government has granted for disaster relief through FONDEN. The authorities have also promoted the component: Emergency Care aimed to assist the population facing

a disturbing natural phenomenon. The assistance consists in: food, shelter and protection materials as well as tools and medicines during the occurrence of the phenomenon/ emergency declaratory.



Regarding IRM, Mexico has financial instruments to assist people and property upon the occurrence of natural disasters:

- Prevention: FOPREDEN
- Emergency Response (provisions supply to the population during the emergency): FONDEN
- Post-Disaster (public infrastructure affected): FONDEN-Reconstruction

Another attribution of FONDEN, is to allow the various departments and agencies of the Mexican government, the acquisition of diverse specialized equipment such as: air, sea or land transportation vehicles, alerting communication systems, among others, to attend emergencies and / or natural disasters.





In order to systematize the process of implementing FONDEN when needed, in 2010 a **web platform** was created to Streamline the access procedure to the resources, called **FONDEN online system.** The system promotes the application of technology to speed up a more precise decision making process on **Integrated Disaster Risk Management.**



Moreover and in order to move from a reactive to a preventive approach the Mexican Government implemented in 2003, a financial instrument called: **Fund for the Prevention of Natural Disasters (FOPREDEN)** whose main objective is the promotion and encouragement of preventive actions tending to reduce or avoid the destructive impacts of natural phenomena. Furthermore it seeks to promote the development of studies oriented to the IRM in order to foster and support applied research.

Through this instrument, several resources have been authorized for the development of **preventive projects**, most notably the National Risk Atlas (NRA). The objective within the development of the NRA is to have a system that allows real-time decision making. The NRA integrates state and municipal detailed information from academic and educative institutions to Federal government facilities; the Monitoring System of Natural Phenomena Disruptors, the National Center for Communication and Operation of Civil Protection (CENACOM) is the concrete example of a real-time monitoring system that allows the concentration of the information at a national level.

The advantage of such a system is that it streamlines and makes more accurate



the response of the Mexican State. Besides FOPREDEN has contributed to strengthen and update the "Mexican Seismic Network" whose objective is to have a network of seismological observatories accelerographic and stations to register earthquakes and describing the generate maps intensity of seismic activity nationwide. These are just some oriented to prevention financed by

examples of the different programs, FOPREDEN.

Mexico is at the forefront on initiatives aimed at developing a disaster risk management framework. This framework comprises **risk transfer instruments** and assurances, such as: **insurance and catastrophe bonds**, with the purpose of protecting FONDEN funds by transferring part of the financial risk to the capital market.

In 2006, the World Bank provided advisory services to Mexico to issue the first catastrophe bond in Latin America, with a term of three years which provided coverage against the occurrence of earthquakes in the country. In October, 2009 it took place the second catastrophe bond placement, also for a period of three years. This second bond extended the coverage to hurricanes risk in the Pacific and the Atlantic. In 2012, the third catastrophe bond was issued extending the one of 2009 risk coverage to earthquakes and hurricanes.

Complementary to the catastrophe bond, FONDEN has also a catastrophic insurance, which provides protection to public assets and housing for low income population. This coverage has been renewed annually; in fact the 2015-2016 term was implemented considering a coverage instrument per event.

Also, in order to replicate the **insurance schemes at the local level**, FONDEN foresees the possibility of granting resources for tailor-made insurance according to the specific needs of protection against the occurrence of disturbing natural phenomena.



NATIONAL CIVIL PROTECTION SYSTEM

1986-2016

Mexico has managed to have a modern, agile and efficient National Civil **Protection System** which features action protocols before, during and after the emergency; ensuring by this an adequate coordination at both federal and local level, as well as an inclusive Civil Protection and a **Risk Mitigation** public policy all over the country.