Risk Management - Floods in the province of Buenos Aires as analysis case

Gestion des risques - inondations dans la province de Buenos Aires comme cas d’étude

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RÉSUMÉ
Les 25 et 26 décembre 2009, de fortes pluies et d’autres facteurs ont provoqué le débordement de la rivière San Antonio de Areco et une des plus graves inondations dans la province de Buenos Aires. 2 100 personnes ont dû être évacuées. La province de Buenos Aires, après l’intervention du ministère de l’Infrastructure, a ordonné la création d’un Bureau exécutif pour la coordination et l’articulation des différentes tâches réalisées par les agences nationales, provinciales et municipales. Les 2 et 3 avril derniers, des précipitations extrêmes ont provoqué de graves inondations à La Plata, avec de nombreux morts à déplorer et d’énormes pertes économiques. Ce travail propose une description détaillée pour :

- Évaluer les conséquences directes de la catastrophe.
- Planifier des actions à court, moyen et long terme.
- Réaliser les travaux et les actions nécessaires pour prévenir et atténuer ces phénomènes à l’avenir.

Enfin, nous présentons des études comparatives/statistiques avec un fond historique confirmant le changement climatique comme une variable essentielle à prendre en compte dans les programmes gouvernementaux.

ABSTRACT
The main objective of the work is to report government actions that are being developed in the Province of Buenos Aires, in the policy framework for emergency rigged due to the effects of climate change that generates a global problem, and which brings an increase in extreme precipitation, among others. As part of the presentation for Novatech 2013, was chosen for the flooding of the town of San Antonio de Areco in 2009, to describe the measures implemented, and seen the recent flood, April 2, in the City of La Plata, caused by precipitation of unprecedented scale, we were obliged to add the current data from the recent problems in the province installed.

KEYWORDS
Climate Change, Institutional articulation, Risk management, Stormwater management, Urban planning
1 FLOODS IN THE PROVINCE OF BUENOS AIRES AS A ANALYSIS CASE

1.1 CLIMATE CHANGES IN THE REGION

In the current global climate change, urban centers, which are in a process of development with increases in population, are victims of extreme rainfall.

Rainfall suffered by the City of Buenos Aires the night of 1 to April 2 and April 2 in La Plata, are part of a phenomenon that affects the region of the Pampas [Southern Brazil to the south of the province of Buenos Aires] since the early 80s in which there is an increase in the number of extreme rainfall of over 100 mm in a few hours.

According to experts these storms that happened every 100 or 70 years, now will be repeated every two or three years and is due to a concrete sign of climate change such as the accumulation of greenhouse gases, and climate impacts Hole austral ozone.

1.1.1 International Background: Floods in Rio de Janeiro

A highlight is the history that happened in March 2013, when heavy flooding occurred in Rio de Janeiro that led to the death of over 30 people. In just 24 hours, fell in Petropolis, 68 km north of Rio de Janeiro, 390 mm of rain, while the average for all of March is 270 mm.

Also remember that in January 2011, more than 900 people died in the mountainous regions of Rio due to the storms that caused flooding and landslides.

1.2 SAN ANTONIO DE ARECO CASE

San Antonio de Areco is a party of the province of Buenos Aires, located 175 km from La Plata. Its capital is the town of San Antonio de Areco. Borders to the parties of, Baradero, Zárate, Exaltación de la Cruz, San Andres de Giles, Carmen de Areco and Capitán Sarmiento.

According to provisional data of Census 2010 the population of San Antonio de Areco is 23,096 people, out of a total of 15,594,428 inhabitants provincial.

1.2.1 Situation

In the last days of December 2009, San Antonio de Areco was affected by heavy rains that caused the flooding of the Areco River whose course runs through the heart of the city. Because of this generated the largest flood in its history, which produced the flooding of various neighborhoods and much of the inner city, affecting more than 3500 people.

Rivers and streams overflowed as a result of increased flow in the Paraná Basin by heavy rains that hit the region. More than 600 people were rescued from their homes, and a 2100 self-evacuated.
Aerial view of the City of San Antonio de Areco, after the storm.

1.2.2 Government Intervention

As a result of the events, the Government of the Province of Buenos Aires, decided to build a Ministry Implementation Office in San Antonio de Areco, naming Francisco Cafiero as his coordinator, in order to carry out and coordinate relevant tasks the solution of the problems.

worked with the local municipality, local political forces represented, NGOs, neighbors and other provincial and national agencies.

Everything was done with permanent openness to the neighbors, participation and transparency.

Governor Daniel Scioli declared water emergency in the Areco River Basin and the Provincial Government allocated a grant to the most urgent needs.

Were performed cleaning and weeding of the main streams of storm drains, the town and the main neighborhoods flooded. In addition, complaints were carried out in relation to irrigation canals and drain unauthorized.

Cleaning kits were delivered, water, clothing, appliances, beds and food for the victims.

The Directorate of Hydraulics launched the cleaning work, stump removal, weeding, correction and profiling Areco River, extending over a length of 34 km.

Were tendered a comprehensive study for the Areco River basin, the results determined the degree of impact of all the factors that caused the flood, water works to be performed and a master plan for the entire basin.

Were settled in five corners of the basin hydro meteorological five stations for early warning system.

With the Provincial Roads Department was reconstituted railroad embankment with the rising river water exceeded its height and affected its stability and composition.

2 CASE OF BUENOS AIRES AND LA PLATA CITY

Maximum reflectivity recorded by weather radar Ezeiza between 3 and 9 pm on the April 2, 2013. The relationship with the intensity of the rain is shown in the color scale. SMN
Affected Areas: Districts of the City of Buenos Aires: Belgrano, Saavedra, Villa Santa Rita, Villa General Mitre and Villa Pueyrredón.

Property Damage: More than $300 million
Fatalities: 8 inhabitants

2.1 Phenomenon climatological

According to a report by the National Weather Service, heavy rainfall over northeastern Buenos Aires province were dominated by the presence of a low pressure center in middle levels of the troposphere. This type of phenomenon characterized by the formation of the low pressure center that persists for more than 36 hours is called cutoff low.

These systems occur most often during the fall and affect central Chile and Argentina with an average of 3 events each fall.

The off lows are usually associated with the occurrence of rainfall in the region. However, the intensity of them is variable and may be influenced by factors smaller scale.

As in other weather situations, while it is possible to predict the occurrence of rainfall, as was done in this event, it is not yet possible to predict with sufficient accuracy the intensity, location and time of occurrence of the same.

Maximum reflectivity recorded by weather radar Ezeiza between 3 and 9 HOA Day April 2, 2013. The relationship with the intensity of the rain is shown in the color scale. SMN

2.1.1 Situation

Affected Areas: La Plata, Tolosa, Berisso Ensenada.

Property Damage: More than $4 billion
Fatalities: 57 inhabitants
Geographical location of the City of La Plata.

The city of La Plata, was one of the hardest hit by the storm, so then there will be a description of what happened and the role of government to the situation.

The Department of Seismology and Weather Information National University of La Plata confirmed that the day of the flood 392 millimeters of rain fell in La Plata, twice the historical maximum of 1930.

Compared to previous statistics, the highest rainfall recorded in a 24 hour period from 1909 occurred on March 11, 1930, with 174 millimeters, and the January 18, 1910, with 162 millimeters, Department reported.

La Plata is the capital of the province of Buenos Aires, is head of the party of La Plata and is located 56 kilometers southeast of the city of Buenos Aires.

The current population size in the last national census in 2010 is 574,369 people.

Hours after flooding in the City of Buenos Aires, the storm in the area began to affect the city of La Plata, for six hours fell more than 350 ml of water, causing the overflow of streams Regimento, Maldonado and El Gato that surround the city.

There were over 3000 people evacuated, and 52 fatalities with 25% of the population who suffered directly the storm.

Within hours, the water within the City and surrounding areas came up to 2 meters high in some neighborhoods, endangering the lives of the population and generating material loss over 55 thousand homes and 3000 businesses.

The services of electricity, water, and telephones were collapsed, aggravating further the situation.
2.1.2 Government Intervention:
The Governor of the Province Daniel Scioli declared a state of emergency and activated the mechanisms to alleviate the situation.

Both at the national, provincial and municipal, were conducted rescue and evacuation, and once drained the water of the city, they began the task of cleaning streets and cleaning kits provided, water, clothing and food for the victims.

Operational bases were located, in order to facilitate the shipment of supplies and human resources organized for the tasks of assisting the population, unclogging streets and access, among others.

The municipal government, provincial and national acted together, with the support of civil society, in a first stage to assist evacuees and then water drainage tasks within the town.

Interministerial table was formed between the Ministry of Public Space, the Ministry of Infrastructure and the Ministry of Government, all under the Government of the Province of Buenos Aires, in order to have government presence and conduct surveys of the areas most affected.

Immediately, the Bank of the Province of Buenos Aires, provided a credit line with a fixed rate for citizens who suffered material loss and facilitate their homes in many cases, back home.

Nationally financial support was available to retirees who suffered flooding, with a doubling of their salaries for two months, as the universal child allowance and an allowance for the unemployed, with an investment of 400 million pesos.

Phones were placed for delivery at the time of ID, for free, as well as the renewal of the vehicle license plate.

Flood and vulnerable: The weather event affected mainly the most vulnerable.

So once the first stage of the emergency, government efforts are concentrated on serving the housing and health needs of these sectors.

Moreover, the Ministry of Infrastructure of the Province of Buenos Aires, is planning to implement the following measures:

- Cleaning Tasks and adequacy of Arroyo El Gato in La Plata, in order to enable better water runoff occurring as one of the main recipients of storm drains of the town of La Plata.
- Improvement of the channel in the section "open" the Arroyo Tributary 1 Regimento, south of La Plata.
- There will be cleaning and drains adequacy of different sections of town.
- It is expected work on the Arroyo Maldonado and Tributary, in La Plata and Berisso.

3 FINAL CONCLUSIONS

The presence of weather events, such as extreme rainfall installed is a reality in our time.

Within days of the disaster in the city of La Plata and surroundings, and with a history of flooding in the city of San Antonio de Areco, this paper attempts to describe the social dimension of the disaster.

Some of the measures implemented to possible new extreme precipitation are related to the assembly of an organizational scheme to respond quickly to an emergency, such as an internal communication system of early warning.

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