Resilience and civil protection department

## Part I

After a team presentation and an introduction to the project the conversation started

**Research team:**

Iztapalapa is a colony which presents recent floods.

Colony “La Colmena” has 2 to 3 times of floods per year. 0.4 to 1.2 m is the flood level. Maximum rainfall 150 mm. It has a nearby station. It is also adjacent to a regulating vessel which is covered and overflowed.

**SGIRPC:**

Recently last week the season of tropical cyclones and storms was formally inaugurated, coming from both the Atlantic and the Pacific. Today forest fires have been recurring, according to the calendar of threatening There will be a problem with flooding. For that, SACMEX channels, CDMX Water System, are being established to monitor. They are looking for points of greatest recurrence of floods, points of greatest relevance as floods. A distribution of the most conflicting road crossings in the city. It could help identify case studies. Consider that the Peñon has a low flood rate.

**Question about floods: Has there been an increase in city floods?**

**SGIRPC:** The floods have been constant in the city. I do not consider that Climate change has had an impact on the areas. It does not attribute the phenomena. This is an endorheic basin. The most conflicting points are already located in the risk atlas. The impact must be evaluated. The risk is assessed in terms of the recurrence of rainfall, the period of return, the vulnerability of the city.

An example is San Antonio Ajusco

According to the level of resilience of CDMX is high. Due to the hydraulic capacity of the city, floods last little. CDMX invested in a tunnel in the Eastern sector.

**Question about decision making: What is the department's relationship with municipalities, communities.**

**SGIRPC: This** department has only few months since it was created. Before it was the Resilience Agency which had little time to operate in the city. With the change of government is associated with Civil Protection. Resilience has more impact from risk management. They were asked to be transversal to other institutions. Mobility protocol in case of earthquake with the same department. Ecosystems in the face of climate change with the environment secretary. This secretary is going through many changes this year focusing towards risk management, without neglecting civil protection. We now retrieve flood information along with firefighters. The relationship with the mayor's offices is coordinated, along with the 19 secretaries of the CDMX. When the mayor's capacity is exceeded, it is necessary to provide support, however, they define the main protocols.

Floods They coordinate with different units, SACMEX, DESASOLVE. Firefighters for emergency care, citizen secretary. Who will act at the moment.

**Question about what is the link with the community, is it through the mayor's office?**

**SGIRPC:** No, it is through SENTIKA, a Nahual word that is called cross roads. Direct coordination with a volunteer. It was created for earthquake issues, but now works with volunteers for disaster and emergency prevention. It will include all the people who want to be part of this volunteer after providing them with online and thought courses. In addition, ‘risk prevention committees per quadrant’. CDMX was divided into 848 quadrants, where many colonies converge, from the perspective of citizen security. It is the deployment of the city for security issues. It will promote citizen security and civil protection commissions. Within these commissions, risk prevention committees will be established. It is going to train the population, family plan, what to do before, during and after the emergency. And that they form brigades (will send more info) CPR abbreviation, the idea is that they make participatory risk atlases. It will start with the first 347 quadrants of greatest vulnerability

**Question about how long will this proposal take to carry out?**

**SGIRPC:** The first quadrants may be covered for the first two years. They will rely on city volunteers. They will be trained so that they replicate and train the community, in a waterfall model and supported with online courses.

**Question about monitoring. Normally it is done during the emergency and not constantly. Will this be part of the objective?**

Yes, but more on the side of SENTIKA. They will have different levels of citizen participation. There will be more specialized doctors, nurses, veterinarian, with very specific training for the time of the emergency. There will be a mason volunteer, bicycles. Within SENTIKA there will be an active volunteer that will be located within this quadrant, which will be a monitor.

**What is the relationship with SENAPRED and CONAGUA**

The relationship with them covers the total procedure. First, the multi-threat alert system is discussed. Today the resources to establish are sought. C5, centre for command, control and citizen communication. Concentrate information on city emergencies, cameras. You have a mirror inside C5, they have access to the cameras. With CONAGUA the monitoring and alert part is seen, they will use the UNAM hydrological monitoring system, the Mexican national institute of water, (plus another technology institute) that has a certain number of stations in the city, to measure rainfall in real time for a laser. From this an early warning system will be made, SERNAPRED wants to join this agreement. This system still does not operate

**How can we contribute to this process? What would be the priorities? Is there a successful experience to look at?**

**SGIRPC:** Establish how the population will act in case of an alert. Including 3 factors, risk knowledge, knowing how much it will rain and where; how are you going to measure (technology); as alerts to the population, communication strategy. The last is the big problem of alert systems. Bayarta have a tsunami speaker system. They did not want to turn it on so as not to scare the population. As communicated to the population so that they do not overreact.

Sky alert is a private company that sells this alert service. Sometimes this system works when it is not necessary.

Community work is essential.

This department is looking for a change from diagnostics to real projects. Pilots for public policy.

**Question about the criteria to select the case study**

**SGIRPC**: You can analyse two databases. Where there are more floods with SAXMEX and cross it with a base of social vulnerability. Match with more recurring colonies.

Previous agency worked with communities in particular. Study on slopes.

**Tips for fieldwork**

**SGIRPC:** For field work, the first thing is to approach the local authority. Approach a community leader. Do not create expectations. Present benefits of activities and do not study.

There is potential on Iztapalapa due flooding and vulnerability indexes.

This administration has PILLARS, points of innovation and freedom, education. Another objective is to install 300 in the city. It is going to appropriate the neighbourhood space. You can see where there are PILLARS built and from there carry out the project, since there are training courses.

**Question about links with NGOs**

**SGIRPC:** There is a registry of volunteers, NGOs that do volunteer work for disaster preparedness. They could accompany us. It does not recommend entering schools.

Rainwater collection. This government will install 10,000 systems in the city through the NGO ‘Urban Island’. Capture to reuse.

Mexico has an agenda committed to climate change and the 2020 strategy. It will be a project document for 6 years, environment secretary, action plan. At the same time comes the city's climate change strategy with a horizon of 20 years.

Relationship with the army. Protocol of action in case of earthquake. Army and navy assistance. Between them, the MX plan, combination plan M3 and Marine Plan apply. Specific plan of attention to the population that exceed the capacity of the city.

Goals. Communicate and monitor. By law corresponds to the public authority.

**About technology**

Information system where the community can upload photos, data, send messages. Analysis of data collected at the site, network certain sensors at points to measure.

**How will be the maintenance of this app.**

The app can work at the local level, coordinating the colonies in the decision making for adaptation measures. From training they will know when it is time to act collectively.

Universities as mediators between communities and authority.

**SGIRPC authority:**

As for the communication. If isolated information is given without a control, it can cause problems. It should consist on a communication system which connects with the authority at the same time the different responsibilities. There are villages that run out of electricity with the rains and it was without communication. On those cases, the actions must be quick. One case had the tradition that when there was a problem they would use fireworks. The technology that the community historically use must be taken into consideration.

## Part 2:

**SGIRPC**

Director presents this new department supported by a new law, which means a series of tasks and attributions. The idea is that we work on risk prevention. Two areas are important: risk analysis and resilience management. area of ​​risk management, new risk atlas, independent that layers of the old and other institutions such as SENAPRED, CONAGUA, Geophysical Institute, Engineering are used. There are 264 layers with public information. All geological, anthropic, hydro meteorological, social, economic and environmental vulnerability information. All those are added up deliver the risk. Before they were static atlases. City information by AGED. Any decision making must consider the Atlas of risk. All cracks are included. Iztapalapa has 2300 cracks, with different types. The real estate market matters. Changes are being made in this market. If the population knows where they are buying or leasing a home, they can know what is happening. There will be a negative externality.

This atlas also has reserved layers, underground facilities. There were schools installed on gas pipes, inadequate facilities.

Multiple early warning system, C5, that tells in real time what is happening over and under the territory.

Our task is to prevent, safeguard lives, assets and assets. For that you need instruments. What they do is centralize monitoring. They need to know immediately that is happening. Feedback with the mayors, civil protection, cabinet and social networks so they know what is happening in the city.

There have been 3 days of rain, some trees fell, but little by little it has been less. They are working with the waterlogging, the sinks. Which has meant that many places that flooded today no longer do so.

**SGIRPC** sees the issue of resilience in the new secretary. They evaluate which are the exposed systems of the city, know where they are, identify risk areas by quadrant. 353 quadrants of high vulnerability where you have to be more careful about what is happening and will happen in the future when there is another earthquake. Resilience seeks to identify what is happening in the city, housing schools at risk, where they are located in relation to the tectonic zone, indicators that geo-reference all risk homes.

They work with all secretaries and all units. All proposals will always be made with a risk approach.

Research team explains that in 2017 the glass could not dislodge in other colonies, so the water was returned to the Peñon neighborhood. From something small, a problem was generated on a city scale.

SACMEX: The rainfall regime in CDMX has changed. Each year the rain can be very intense in a short time. The same volumes are now received in a few minutes (before hours). The rain of last Wednesday was concentrated in a specific crossing, in the limit of two city halls. The volume contributed exceeds the capacity of the drainage ducts. It was not a site evaluated as such. Climate change affects and this is an example. Rain patterns change spatially and temporarily.

In 2010, on February 2, 3, 4, days within the dry season in the central zone, were most intense rains of that year. They allowed to recover the aquifer capacity throughout the year. They caused disasters in Mexico City. Those rains have not been repeated. These changes in rainfall patterns can be associated with climate change, this affects decision making. Where we have to strengthen and with what capacity. What translates into an economic problem. Because we don’t know when this kind of rain will ever happen, and then it is not possible to plan a strategic investment. This is one important cause that affects decisions to strengthen the drainage system and how to act on prevention. In the CDMX, the soils are highly deformable, and pooling occurs by pooling. We must be careful in the way the information is displayed. We must offer more to the population.

PLACPAN Viaduct. Depression zones have formed on both sides of the viaduct. Those that remain in the hill under the bridge nothing happens. This soil behaviour has led us to focus on that. Part of the waterlogging prevention system. They are recurring places, not as in the case where there was no information.

In a talk with the director of the Metro, she says that she has already identified sites of risk due to waterlogging.

There are other types of blockages due to the accumulation of construction materials are drained when there are improvements on the street. They melt and become stone inside the drain.

How do we systematize each one of them?

They are also spaced differently, also affected by economic factors and new works.

Eg: Mexican Circuit. It is flooded and put layers. Now the circuit goes above, the problem is that a dam was formed. HOW TO SYSTEMATIZE ALL THESE CAUSES TO BE ABLE TO IDENTIFY THE ACTIONS THAT ALLOW US TO GET TO THE MOST EFFECTIVE ACTION TO REDUCE THE CONSEQUENCES OF SUCCESSES. I have to be very efficient in recovering everyday activity.

There may be a balance where communities are empowered in decision making

**SGIRPC:** RESPONSIBILITY. Citizens think they have specific responsibilities. There is a problem of citizen awareness. The authority goes and also seeks a change of habit. Sometimes the waterlogging is due to lack of cleanliness. There has to be training, awareness and clarity that is a task for both. It is a task for the government, but at the same time for the community. The authority cannot solve everything, but it can be solved together.

The problem with the academy is that you can only provide short-term work.

Academy isolates the problem, without having to resolve everyday concerns. Many times, we are left with the idea of ​​looking for something better.

Please, no more diagnoses, propose solutions.

**Question about smart cities.** Bottom-up perspective. How smart city is part of the institution

**SGIRPC**: Part of the city program. We want a resilient, safe, prepared, intelligent city that knows how to respond with technology. The atlas is based on this idea of ​​being intelligent when connecting different agents and institutions.

**Question about the availability of granular data**

**SGIRPC**: We use an AGED level. The proposal is to arrive at the end of the year with one information per batch. Today you can put the address and understand what is happening. All civil guard directors in the mayor's office are receiving training to use the map.

There will be risk prevention committees by colony. They want to arrive to the colonies with the commissions of citizen security and civil protection. Each priority colony will make their own participatory risk atlas and emergency plans for cologne. The community will act jointly and in coordination. More directly, small territories search through this participatory system, old floods, etc.

Community is there for participation, for information. Everyone wants to act on their neighbourhoods. They want to understand the cracks, the waterlogging. They are much more receptive to volunteer work.

Tlalpan, it would be a fantastic area to enter. It is less dangerous and there are problems. There are 50 waterlogging points. Flood zone. Very interesting in socioeconomic terms, older adults, disabilities.

**Research team:** How can we collaborate. What can we do for an early warning. Sensors, pilots.

**Response of the authorities:** There is a protocol. Community water system of Mexico plus other agencies that act in a coordinated manner to seek actions that seek storm water management.

**SGIRPC:** UNAM Hydrological Observatory has that responsibility.

The collaboration may consist of training and dissemination of the alert systems that are working on resilience. But it has to be fast. There is a thesis that has identified all vulnerabilities.

Tlalpan

Question about what is the biggest concern?

**SGIRPC**: Money and make the citizen responsible.

For example, there are 187 uninhabitable churches.