Water scarcity and social conflict

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Abstract: *Climate change is an issue that has consequences all over the world. One of the most severe is the water scarcity that is causing migrations, loss of biodiversity, illness, increases in mortality, food availability, economic decline, social and political conflicts. Underdeveloped countries are more likely to suffer the consequences of this issue, particularly in Latin America. The present text aims to shine a light on water shortage in Mexico, taking as a case study a community located in the south of Mexico City, named San Gregorio Atlapulco, where myths and traditions are combined to protect this vital resource. Social conflict, political confrontation and State repression are part of the Mexican landscape caused by water shortage.*

Keywords: Water scarcity, Mexico, San Gregorio Atlapulco, Social Conflict, Climate Change

Introduction

Climate change is causing ecological disasters from droughts, floods, hunger and water shortages. All countries are likely to suffer the consequences. However, poor countries and vulnerable communities are more likely to suffer the highest price of the ecological disaster. Latin America is one of regions in the world that has been experiencing in recent years the effects of climate change. Temperatures are causing heat waves, cold spells, heavy rains triggering floods on entire villages and cities. Unpredictable weather for agriculture, and water scarcity are among the most common disasters in the region, along with human misery, damaged infrastructure and destruction of natural ecosystems. The pressure on countries and governments at national and international levels increases yearly. Nowadays, one of the major sources of political and social tensions is water scarcity, and Mexico is not the exception on this new global scenario. In this context, the present text aims to analyse some of the effects of water scarcity in Mexico. The key points raised are what factors contribute to create or aggravate this situation. The hypothesis of this work is based on the assumption that water scarcity is driven by climate change, corruption, poor infrastructure and inefficient urban planning. The present text tries to describe how water scarcity has impacted on social and community relations, political structures, economic and production relationships and has served as a cause of social and political conflict, taking as a case study a community located in the south of Mexico City, named San Gregorio Atlapulco, when in December 2022, this community put water conflict in the spotlight. A peaceful demonstration soon escalated into a military repression against villagers, who demanded to protect their water resources.

The text is based on an interdisciplinary perspective with qualitative data, collected by in depth interviews from local people in San Gregorio Atlapulco. As well as taking into account quantitative data released from national and international institutions involved in environmental security. Equally, this text considers

specialised literature on water security. This article is divided into three parts. The first one offers a conceptual framework based on water security. The second one presents the water scarcity in the context of Latin America, and Mexico in particular. The third one exposes the case of water conflict in San Gregorio Atlapulco. Finally, this analysis is wrapped up with some final comments.

A brief conceptual framework

The most influential organisations have raised their concern about the effects of climate change in recent years, particularly in the water scarcity. The United Nations, The Organisation for Economic Co-operation and Development, The International Monetary Fund and the World Bank have implemented some policies to suggest how governments can mitigate the effects of water scarcity through policy advice, technical assistance and financial credits. Some developed countries such as the United States, the United Kingdom, Germany, France, Sweden, Switzerland and Netherlands among the most important have launched new policies to guide the debate on this matter. They have developed expensive technologies, which aim is to reduce the effects of climate change and water related issues, while in underdeveloped countries the technology to mitigate these effects is a luxury, as it is quite expensive and they do not have the skills and trained people to handle this new technology.

Water scarcity and water related issues are new phenomena analysed in the framework of water security. According to the United Nations Water security is the 'capacity of a population to safeguard sustainable access to adequate quantities of, and acceptable quality water for sustaining livelihoods, human well-being, and social-economic development for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability' (United Nations, 2013).

Water security encapsulates complex and interconnected challenges highlighting water's centrality for achieving a larger sense of security, sustainability, development and human well-being. This outlook plays an important perspective to guide domestic and international public policy agendas and private corporations. Following the United Nations, 'The recognition of the human right to safe drinking water and sanitation by the United Nations General Assembly and the UN Human Rights Council is an important step towards ensuring water security at individual and community levels' (United Nations, 2013: 6).

Certainly, the recognition of safe water and sanitation access as a human right by the United Nations and General Assembly in 2010 is a paramount achievement for humanity, but there are many other challenges. Following the United Nations Children's Fund (UNICEF) and World Health Organisation (WHO) it is important to continue implementing monitoring programs to ensure that access of water is achieved in many parts of the world, mainly in underdeveloped countries, as well as including these issues in the priorities on international programs about sustainable development (UNICEF and WHO, 2015).

UNICEF and WHO are both involved in the Monitoring Program for Water Supply and Sanitation (JMP), which began monitoring the sector in 1990. These efforts have provided regular estimates of progress on the Millennium Development Goals (MDGs) tracking changes over the last 25 years to 2015 (UNICEF and WHO, 2015).

The access of drinking water is threatened not only due to the lack of infrastructure, but also due to the lack of the production of this vital liquid[1]. Currently, the water shortage is one of the main concerns of governments worldwide and it is considered as part of the national security issues.

Officially, there are 23 countries that have water stress levels above 70 percent, and 60 percent of the 172 countries reporting are unlikely to reach the target of integrated water-resources management by 2030. Without fundamental progress, it will not be possible for the various stakeholders who are co-dependent on the water resources in a country to adapt to a rapidly-changing climate. Therefore, the maintenance of people's well-being, and social order are closely tied to water quantity and quality (Howard, 2021).

The implications of water shortage transcend national boundaries causing international conflicts and tensions. For example, a source of discontent between the United States of America and Mexico is related to the waters of Rio Bravo. Also, Bolivia, Peru and Ecuador have experienced disputes over water shortages and fight for equal access (Vidal, 2017).

The role of water scarcity is changing the nature of instability and conflict. 'Focusing on water-stressed areas of the world, it articulates the role water plays not only in diplomacy, violence and conflict, but also how water can be used as a tool of coercion across the spectrum of conflict. Additionally, it provides insights into how water stress can empower violent extremist organisations and place stable government at risk' (Wilson, 2018).

Water security is already part of the agenda of many politicians, but it needs to be central to all decisions made on planning, development, and investment around the world. It needs to be present in all discussions on international climate change at the same level of importance that carbon emission and net zero (Howard, 2021).

For the Organisation for Economic Co-operation and Development (OCDE), water security is also a major issue in cities, towns and villages, since water is the most essential resource for life and the key factor to maintain healthy ecosystems, communities, cities and rural areas, economic growth, agriculture, energy production and industry. Water scarcity has also implications on agriculture, food security and has become a prominent urban issue. 'By 2025, 55% of the global population is expected to live in cities above 50 000 inhabitants. Water demand is expected to increase by 55% by then, especially due to growing demand from manufacturing (+400%), power generation (+140%) and domestic use (+130%)' (OCDE, 2022).

The OCDE considers that cities, local and regional governments, in coordination with national governments, have a key role to play in managing efficiently water resources, providing access to quality drinking water and sanitation services, and preserving ecosystems and biodiversity, including through combined actions on governance, public investment, urban planning, and infrastructure. Because water crises are often linked to governance crises, it is crucial to adopt a multi-level water governance approach, involving all stakeholders, alongside mayors and elected representatives of local and regional governments (OCDE, 2022)

[1] About 71 % of the earth's surface is covered by water. This amount of water is found in different forms such as glacial, freshwater, ocean salt water and atmospheric vapor. This water supply is constantly changing from one form to another form. That is, it evaporates from rivers into the ocean and back into the atmosphere through the process of evaporation from the ocean. This cycle was indestructible and continued uninterrupted during many centuries, but recently human intervention and climate change have interrupted this cycle (UNICEF and WHO, 2015).

Today, the challenge is how to effectively conserve, manage, and distribute fresh water in a context, where the world's population continues to soar while the quantity of available water does not increase. Under these circumstances, water scarcity is one of the urgent issues of national security for many countries (Kidwingira et al., 2018: 2)

Water shortage is not a hypothesis, but rather a fact that governments need to address, particularly in Latin America. The failure could destroy the future of new generations and humanity as whole.

Water shortage in Latin America and Mexico

Latin America has the highest water endowment per capita, nearly four times the global average. The region's abundant water resources mean that it boasts the greenest electricity production in the world, with 45% generated by hydropower, and vast agriculture. However, 150 million people or about a quarter of Latin America and the Caribbean's population live in water scarce areas and more than 400 million lack safe sanitation (Wellenstein and Makino, 2022) And this number trends to increase year per year as a result of climate change, old infrastructure, and lack of urban planning.

It is recorded that more than 77 million people lack access to safe water in Latin America due to the lack water infrastructure. This region has made tremendous advances in recent decades. The percentage of people in Latin America and the Caribbean with direct access to water has increased from 33 percent of the population in 1960 to 85 percent in 2000. There are still 77 million people without a water connection in their homes – 51 million rural residents and 26 million urban people (World water council, 2022).

Many conflicts have already taken place in Latin America due to the water shortage. For example, the Cochabamba water war that took place in Bolivia between 1999 and 2000. The tensions erupted after the privatization of the State company *Servicio Municipal de Agua Potable y Alcantarillado Santario/* Sanitary Municipal Drinking Water and Sewerage Service (SEMAPA) by the firm *Aguas del Tunari* consortium of Bechtel corporation –a USA company-. The population challenged this privatization contract, as the water rates increased drastically. Protests, community blockages, civilians killed and political instability obliged the government of Hugo Banzer (1997-2001) to reverse the privatisation (De la Fuente, 2003).

In Peru, water shortage has caused strikes and confrontations, after international mining companies were accused of polluting rivers, grabbing water and reducing the amount of water available to farmers. This conflict trigged the death of 51 civilians between 2011 and 2015. It is reported that more than 200 current conflicts in Peru are due to water scarcity (Vidal, 2017).

In Equador, water shortages sparked uprisings and political confrontations. In 2015 indigenous movements joined 20 groups of farmers and environmentalist to march from the Amazon region to Quito to demand equal access of water, after the enactment of a new water law, which allows privatisation of water and gives mining companies access to scarce water sources in the country. 'It is said that Ecuador's wealthiest 1% controls 64% of fresh water. A single mine can use more water in a day than an entire family in 22 years. (Vidal, 2017)

Water scarcity in Latin America is driven by different factors among them mismanagement of water sources. The major aquifers in Latin America and in Mexico in particular have been threatened by overexploitation and pollution. In

South America, 40-60 percent of water comes from aquifers that are facing ever-growing pollution from over-mining and agriculture. In Mexico, 102 of the nation's 653 aquifers are overused, the main source of water for 65 percent of the population. In some areas, farmers have had to switch from water-intensive cotton to less profitable grain crops used to feed cattle, because the aquifers no longer produced sufficient water to grow cotton (World water council, 2022).

In Mexico, water shortage is part of the new landscape. In 2004, 35.25 millions of Mexicans lived with extreme water scarcity. 43.19 millions lived with low levels of water supply, and 12.2 millions had medium availability (Breña and Breña, 2007).

Mexico is facing its worst water crisis in 30 years (Redacción El Universal, 2022) as reservoirs serving about 23 million people dry up. Many Mexican cities have already experienced water scarcity. In July 2022, eight of Mexico's 32 states were suffering from extreme to moderate drought, which represents 1,546 of the 2,463 municipalities in the country, meaning two third of the municipalities are facing water shortages, according to the National Water Commission/ *Comisión Nacional del Agua* (CONAGUA) (Abi-Habib and Avelar, 2022).

The water crisis is especially serious in Monterrey, Mexico's second largest city and one of its most important economic centres. The entire metropolitan area, with some five million inhabitants, is affected by the drought, according to the authorities. Some neighbourhoods in Monterrey have been without water for 75 consecutive days, which has led many schools to close before the scheduled summer vacation in August 2022 (Abi-Habib and Avelar, 2022).

Another important factor that contributes to the water scarcity in Mexico, as many other countries worldwide, is climate change. This phenomenon has caused consistently hotter summers, and extreme cold winters. La Niña[2] created the perfect conditions for severe droughts. Several cities have now reached the point of critical water scarcity when supplies run out. More than half of Mexico is suffering from drought. The national water authority, National Commission of Water / *Comisión Nacional del Agua* (CONAGUA), declared a state of emergency (García, 2022) in four northern states. Although, the drought has not halted the water use of companies including Coca-Cola and Heineken that use private wellspring to continue extracting groundwater for their production lines (Perlmutter, 2022).

On 18th July, the Mexican president, Andrés Manuel López Obrador (AMLO), asked the drinks companies to stop production and give water to the public. Heineken said it would allocate 20% of its supply for public use; Coca-Cola invited the public to collect free water from its Topo-Chico mineral water factory, but it is too far away for most residents that they cannot go to collect water in those locations (Perlmutter, 2022).

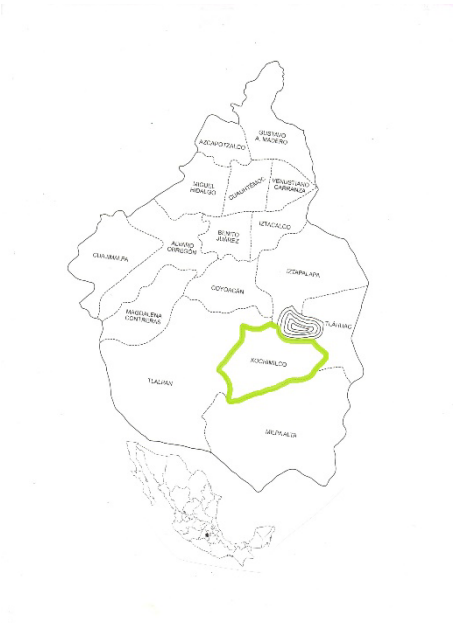
According to experts of the Universidad Nacional Autónoma de México (UNAM) / *National Autonomous University of Mexico*, the water sources in the Mexican Valle have reserves for just 40 years (Colín, 2019: 8), and the government hasn't given the importance to this situation as it deserves, since there is no water culture, where people become more aware about the real value of water for life: 'This resource is not valued in an environmental, economic or social way. We do not give it economic value, because it is free. Currently, five Mexican states are supplied from the Valley of Mexico basin and it is necessary to define how to distribute this

[2] La Niña is a climatic phenomenon that is part of a natural climate cycle known as the El Niño -Southern Oscillation. This climate cycle has two extremes: a warm phase known as El Niño and a cold phase, precisely known as La Niña. La Niña events occur every two to seven years, on average, but they do not occur on a regular schedule. Generally, El Niño occurs more frequently than La Niña (NOAA, 2022).

resource and who should use it mainly: agriculture, industry or the population (…) It is a very difficult decision that at some point has to be made' (Colín, 2019: 8).

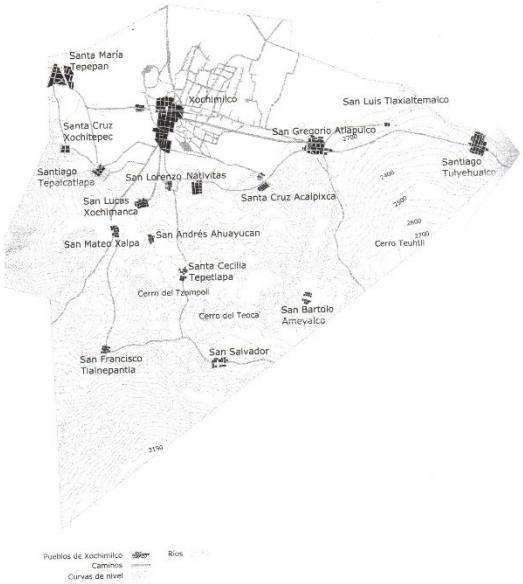
So far in Mexico City the water has been managed by government, therefore the price for accessing to this vital liquid has been quite accessible for all citizens. For example, between 2015 and 2017, the district of Tlalpan spent hundreds of millions of Mexican pesos in water deliveries, covering the highest price, while ordinary citizens used to pay just 100 pesos/5 USD dollars per water delivery of 1000 litters. However, this price cannot be sustainable for a long time. On one hand, there are no more financial resources to continue paying for it, and on the other hand, there is no more water available for supplying all districts of the city.

Water scarcity in Mexico is a cause of conflict between private companies and citizens, and between government and citizens and between citizens from one region or district to another. One of the most recent social and political conflicts caused by water scarcity was registered in the village of San Gregorio Atlapulco[3], district of Xochimilco, located in the south of Mexico City. This city is made up of 16 districts.



Mapa de la Ciudad de México (2023) Editores libres, México

[3] On November 30, 2005, San Gregorio Atlapulco celebrated 450 years of existence. In 2022 this village reached 467 years. The history of this town arose in the first decades of the 16th century, in the years 1532, 1555 and 1556, when the descendants of Aztec warriors, who settled in these lands, won by the Mexicas -another tribe of the pre-hispanic world- in the years 1428-1429, they made them their own land. The official language was nahuatl -indegenous language inherited from the Aztecs-, and by 2022 there were just a few speakers of this language (Cordero, 2017).



Terrones López, María Eugenia (2004) (ed.) A la Orilla del Agua. Historia de Xochimilco en el Siglo XX, México, Gobierno del Distrito Federal, Delegación Xochimilco, Instituto Mora.

A village of resistance

San Gregorio Atlapulco is a town that is divided into two ecological systems: the area of hills or highlands, where there are *nopales* -cactus-, *magueyes* -cactus flowers- and mountains, and the lake area where there are *chinampas* -floating gardens that Aztecs used to cultivate flowers and vegetables (Ruiz and Ruiz, 1995).

San Gregorio Atlapulco, meaning in nahuatl '*donde el agua revolotea*' o en '*las tierras del barro*'/ 'where the water flutters' or in 'the lands of mud', is one of the Mexican villages that resisted the Spanish Conquest between 1519 and 1521. The *chicuarotes* -name that describe native people of San Gregorio, who share the same characteristics of a native type of chilli or pepper that only grow in this village: spicy and hardship- could resist the conquest by hiding themselves from the Spanish conquerors inside of the *teuhtli* -meaning in nahuatl venerable sir- which is an extinct volcano that has plenty of caves (Ruiz and Ruiz, 1995).

During the Mexican Revolution (1910-1920), this village was a nodal point of the Zapatista struggle. It is said that the 'Plan de Ayala' lead by Emiliano Zapata –revolutionary Mexican leader- was meant to be signed in San Gregorio Atlapulco, but there was nobody literate that could write and read the principles that the revolutionaries wanted to express, therefore, the Zapatistas went to sign this treaty in the state of Morelos in November 1911 (Magaña, 1912; Espejel, 2018) This treaty has been very important in the history of Mexico, since it defined the agrarian distribution that prevails today.

In the 90's of the XX century, this village gave a warm welcome to the members of the Zapatista Army of the National Liberation/ *Ejército Zapatista de Liberación Nacional* (EZLN), (EZLN, 2001). This village has also been historically a point of resistance in the defence of lands of the community. During the government of Carlos Salinas de Gortari (1988-1994), San Gregorio Atlapulco defended arduously the *ejidos*[4] –community agricultural land- from neoliberal policies that wanted to

[4] The *Ejidos* are lands of common distribution, comprised individual plots, whose usufruct was shared by members of the town. The residents of the town obtained firewood, water and other resources to live and cultivate their plots. These lands could not being sold. They

destroy the community indigenous ownership. One of the main economical activities of villagers is still the agriculture. San Gregorio Atlapulco has a population of 12,208 habitants and low levels of social mobility (Habitat, 2022)

San Gregorio Atlapulco was also a pillar in the electoral campaign of the current president of Mexico Andrés Manuel López Obrador (AMLO), then presidential candidate who promised to do justice to this town and its indigenous communities of Xochimilco, through implementing public policies different from those applied by the Party Institutional Revolutionary (PRI) and the National Action Party (PAN) (AMLO, 2015; AMLO, 2018) Peasants of San Gregorio Atlapulco received AMLO with flowers, music, fireworks and Aztec dances with the hope that AMLO would be a different government. In fact, in April 10th 2014, AMLO and Marti Batres, ex president of the executive council of the Morena's party and currently Secretary of Government of Mexico City, mounted an honour guard and placed a wreath at the statue of Emiliano Zapata located at the centre of the town of San Gregorio Atlapulco (AMLO, 2014) as a way to show their political compromise with the zapatista believes, based on the values of freedom and land, as can be seen the picture.

Andrés Manuel López Obrador (AMLO). 2014. "AMLO y Marti Batres ofrecen guardia de honor a Zapata en el pueblo de San Gregorio Atlapulco." *Boletín Campaña*, 10 de abril, consultado el 14 de diciembre de 2023, <https://lopezobrador.org.mx/2014/04/10/>.

San Gregorio Atlapulco is a community, which shares urban and rural features. It has still an intense agricultural economy and is characterized by its strong defence of land and natural resources:

> *From the first moment, the community -San Gregorio Atlapulco- was of great interest to us due, among other things, to the sumptuousness of its festivities, its well-known political*

could just be inherited to other members of the community or to pass them from one generation to another. The post-revolutionary *ejido* was defined as sui generis land ownership. The recognition of individual entitlements with characteristics similar to private property within the corporate ownership of the land was its main peculiarity. The constitutional neoliberal reforms of 1992 have given the *ejido* even more peculiar traits that deny the principles that were the justification for its community creation. This reform had as a main goal to create private ownership and destroy community ownership. The measure was looked for selling these lands to private companies. However, thanks to the indigenous' fight, the community ownership of the ejidos continue surviving until nowadays (Torres-Mazuera, 2012). San Gregorio Atlapulco has a large area composed by Ejidos, which are part of the national ecological conservation.

> *resistance and the permanent defence of its lands... it is a town with its own identity that resists being devoured by the modern Mexico.* (Ruiz y Ruiz, 1995)

San Gregorio Atlapulco is part of the Xochimilco District, community classified by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as part of the world cultural heritage achieved in 1987 (Vela, 2012), since the environment and natural resources are part of the cultural identity of this region of Mexico. It is important to mention that San Gregorio Atlapulco belongs to the international RAMSAR's category- Intergovernmental treaty approved on February 2, 1971, in the Iranian City of Ramsar- since 2004. This area is also classified as an important ecosystem according to "The Globally Important Agricultural Heritage Systems (GIAHS) in 20007", which recognises agricultural practices combining biodiversity, resilient ecosystems and traditions. The ecosystem of Xochimilco is in great danger, since it is estimated that each year it loses 32 acres due to environmental deterioration and population growth. This drastic reduction of green spaces and land dedicated to agriculture is not an isolated process, but the consequence of a series of political, social and economic factors (Gonsen, 2019).

On Thursday, December 1st, 2022, the population of San Gregorio, decided to close one of the main entrance to the village called Caltongo, main avenue that connects to the district of Xochimilco, opposite to the sports centre and high school of San Gregorio Atlapulco, after being ignored in their petition to cancel the 'sewage project' driven by the local authorities. The mayor's authorities sent hundreds of police to the place, and deployed the army forces around this town to intimidate protesters. Subsequently, on Friday, December 2, around 10 AM, the military and policemen tried to remove protesters and destroy the movement by beating peasants, children, and the elderly people, groped women, pulled many women by the hair, and broke cell phones to prevent transmitting images.

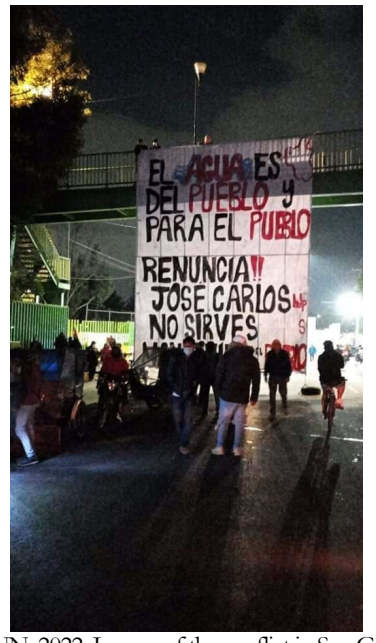


Figure 1: NN. 2022. Images of the conflict in San Gregorio Atlapulco

Figure 2: NN. 2022. Villagers in the movement

Figure 3: NN. 2022. Otomis, ethnical Mexican group, joined the movement en San Gregorio

Figure 4: NN. 2022. Defense messages

The residents of San Gregorio Atlapulco were just protesting because the local authorities did not consult them in advance over hydraulic works that involved the natural resources of the village, particularly the drinking water, since villagers considered that it was a pipeline project to take away the water from San Gregorio to other destinations, attempting to destroy the last wetland, the city's aquatic lung,

and causing water shortages in this community and innumerable damages to the environment of Mexico and the world (Aristegui, 2022).

San Gregorio Atlapulco was severely damaged during the earthquake in 2017: houses and historical buildings were destroyed and people killed, as a result of excessive extraction of water under the ground. Severe land subsidence has already been recorded in this community; therefore, the villagers are quite mistrustful from government.

Local authorities at the beginning of the protest, they denied the intention of the taking the village water. Although, The Mexico City water system / *Sistema de agua de la Ciudad de México* (Sacmex) acknowledged that they had classified all the projects involved to the sanitary collector in San Gregorio Atlapulco as 'confidential', since there were other projects to extract water (Miranda, 2022). The contradictory information between local authorities and Sacmex caused more suspicion among villagers about the intention of the government to take away the village water, which made more difficult to negotiate with the Mexico City authorities.

> *'It's going to bring us sewage from other cities and towns in Milpa Alta, they're going to bring sewage and it will reach our Chinampera area.'* (Nation World News, 2022)
>
> *'All people here we are ready to die if we need to defend our water and lands. The water is our blood. The mother land is defended by our lives, like our parents and grandparents defended our future', says Miss Xochitl, local villager of San Gregorio Atlapulco.* (Nieto, 2022)
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> *'The water, the sun, the land, the trees these are our only richness to transit in this life (…) We are ready to fight for the future of our children. We are not afraid to die. At least, dying with dignity', mentions M. Francisco, community's peasant.* (Nieto, 2022)
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> *'The water is our gold. We are already to die for it. We don't trust to the government. They don't defend us, we need to defend ourselves. They think we would be afraid after they beat our people, but it is quite the opposite', affirms M. Tonatiuh, indigenous farmer.'* (Nieto, 2022)
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> *'The politicians defend their positions. The political parties look for votes and electoral triumphs. The businessmen and real estate investors look for profits, but we defend just our natural resources. The citizens, we need to defend our environment. This is our fight', says Mrs. Quetzali, local teacher.* (Nieto, 2022)

The project called "Sanitary collector of Actopan" threatened to destroy not only the ecosystem of San Gregorio, but also to cause thousands of diseases as a result of the release of sewage from other towns into the irrigation water used in the channels of the chinampas. The San Gregorio Atlapulco's farmers use the chinampas –floating gardens- to produce vegetables and plants that are consumed by the same villagers and other citizens of Mexico City. Until now the same peasants are in charge of cleaning the water canals and reusing rainwater to grow vegetables in the chinampas lands.

The "Sanitary collector of Actopan" project was created without the villagers consent. Therefore,

local people demanded more details about the budget granted by government, the benefits of this project and the environmental impact for the community. Information denied by the local authorities. After three weeks of intensive protest, barricades, road blockages, people from all ages and walks of life that were eating and sleeping on the roads, dancing and chanting nahuatls –indigenous language-

songs, cooking and working on the streets as measures to oblige to the government authorities to negotiate. Finally, San Gregorio Atlapulco won the battle on this conflict and government authorities cancelled the project, and removed the pipelines intended to extract the water.

The clash between San Gregorio's villagers, army and policy left 24 people injured and hundreds of people angry due to the water shortage. The government of Mexico City removed two officials from their posts, after the indignation of thousands Mexicans: the general director of Political Coordination for the southern zone, Emigdio Tonatiuh Ávila Obispo, and the general director of the Metropolitan Police Unit Task Force, Luis Adrián Huerta Laguna, from the Secretary of Citizen Security (Nation World News, 2022).

The conflict of San Gregorio soon inspired other communities to defend their natural resources, mainly drinking water. In Mexico City, they are already many districts that experience water shortages such as Coyoacán, Iztapalapa, Iztacalco y Tlalpan and it could also affect to other districts such as Cuauhtémoc, Benito Juárez, Venustiano Carranza, Milpa Alta, Xochimilco y Azcapotzalco. Many boroughs haven't received any water supplies for weeks, or the water supply comes once a week. The water amount distribution is rationed by local authorities (Colín, 2019: 8).

The defence of natural resources is a hot topic in San Gregorio Atlapulco, since for villagers this subject is out of political games or electoral sales. During the conflict, politicians of the main three political parties: Partido Revolucionario Institucional/ Institutional Revolutionary Party (PRI), Partido de Acción Nacional/ National Action Party (PAN) and Partido de la Revolución Democrática/ Democratic Revolution Party (PRD) attempted to take advantage of the water conflict for their own gain. However, villagers put in clear that their fight was not driven by political means, but rather by the defence of the water access. For these people, the only richness of the mankind is the protection of the environment and the wellbeing of the new generations.

Conclusions

The water scarcity in Mexico is creating social confrontations, riots, political conflicts and government instability. The reason for the clash between the police and the residents of San Gregorio Atlapulco, Xochimilco, was driven by the water. Nowadays, many parts of Mexico are suffering of water need and San Gregorio Atlapulco could be the starting point for many other riots and revolts around the country due to water shortages. In facts other districts of Mexico city such as Milpa Alta inspired in the San Gregorio movement started to organise civilians groups of 'guardians of water' to verify that their water supply was insured. In the village of San Pedro Actopan, neighbour of San Gregorio Atlapulco, whose main activity is agriculture and production of exotic spices, villagers showed their support to San Gregorio, by blocking the access to their village. Villagers accompanied with their horses, donkeys, dogs and cars created barricades around their main roads.

In many parts of Mexico, extreme droughts have left water taps running dry across the country, with nearly two-thirds of all municipalities of Mexico City are facing water shortages that force people in some places to queue for hours for government water deliveries or move from their district to another where water supplies is better (Abi-Habib and Avelar, 2022).

The lack of water has become so extreme that angry residents in different Mexican cities block roads and kidnap municipal workers to demand more supplies. Angry residents have taken also the pipe drivers as hostage and stoned the vehicles,

saying the government is not supplying their neighbourhoods with enough water (Abi-Habib and Avelar, 2022).

Buckets and water storage containers are also in short supply at local stores -or sell for astronomical prices. Unfortunately, the poorest in society are people who suffer the highest consequences of water shortages. The hydraulic distribution is made under socio economic criteria as the poor districts are those, who receive the less amount of water, in comparison to middle and upper class, who receive more water supplies (Nieto, 2011). The scarcity of water in rich boroughs is less frequent than the poorest ones.

The access of water is changing the nature of conflicts. It is creating more causes to emigrate, to deep social inequality, to affect health care of individuals, cause fights and riots, trigger inter-rivalry inside of a country and wars or conflicts between countries. Therefore, governments need to prioritise the water access as primary topic in public policies agendas.

The community of San Gregorio Atlapulco showed how a peaceful demonstration soon escalated into a military repression against villagers, who demanded to protect their natural resources. The effects of climate change are becoming a global risk for the good governance, political stability, and exercise of democracy and defence of civil rights. Good politicians and good public policies can be ruined if the access of water is not guaranty.

As a consequence of climate change, population growth and rapid urbanisation, cities of different sizes, towns and villages will continue to face multiple pressures linked to deteriorating water quality and hygiene, increasing natural hazards (floods, droughts, sea-level rise) and ageing infrastructure will continue creating more conflicts over water allocation (OCDE, 2022).

According to Slater there are natural factors that contribute to water shortages, but the most dangerous are human factors such as systemic corruption that has granted projects to companies not qualified to carry out complex jobs or has hindered infrastructure projects, propelling the water supply crisis to unprecedented levels, as well as the presence of corruption through the lack of transparency, weak institutions, and low accountability (Slater, 2019: 2).

Corruption, mismanagement, lack of accountability, climate change, growing population, predatory companies, poor infrastructure, water leaks, pollution, lack of investment, over pumping, degradation of ecosystems, inefficient urban planning and lack of education on water use and protection are among the most important factors that contribute to lose water capacity. The risks for conflicts, riots and uprisings are more likely to happen every day due to the lack of this vital liquid. The water becomes a source of richness for private companies that put pressure over governments to privatise this resource. Therefore, it is mandatory to create public policies with a long term projection, so far most of politicians prefer create programs based on short term that can guaranty electoral triumphs rather than long term benefits.

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