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Introduction

The greenhouse gas emissions resulting from human activities have been the main cause of the rapid global warming during the last 150 years. Carbon dioxide emissions come mainly from the burning of fossil fuels (oil, gas and coal) for the generation of energy and, to a lesser extent, deforestation. Methane emissions, like those of nitrous oxide, originate mainly in the agricultural and livestock sector.

As for the estimates of the global average temperature of the planet, they started from the direct measurements of temperature since 1880, the year in which systematic climate observation began through meteorological services in a significant number of countries. This temperature increased around 0.85 ° C for 135 years.

On the other hand, the average level of the sea is the most approximate that we can have as a global indicator of the temperature of the climate system since on the one hand the oceans have more than 95% of the heat capacity of that system. By both processes, global warming leads to an increase in the mean sea level and cooling, to its reduction.

Faced with this panorama of Climate Change, it is very likely that GHG emissions have contributed to increase the frequency and intensity of extreme temperatures since the middle of the last century. Heat waves have increased in frequency on several continents, especially in much of Europe, Asia and Australia. Mediterranean Europe faced almost every year of this century heat waves, which have caused and continue to cause casualties. In the USA according to the NOAA in the month of June 2012 record maximum temperatures were recorded. In Australia, an imposing fire in the vicinity of Melbourne, caused in 2009 during the so-called Black Saturday, the death of 180 people and left uncovered, that even under conditions of prevention considered safe, always a vulnerability persists. In the future we can expect a progressive increase in the duration of heat waves, together with the increase in global temperature. It is estimated that from around 2040, these extreme events would be more extensive in time, the greater the GHG emissions.

As for storms and rainfall, there are physical reasons to expect more intense rainfall with global warming, since the water vapor that can hold the air increases with temperature and therefore the precipitating systems have more water available, which results in a higher probability of torrential rains. In North America and Europe the intensity of rainfall also increased, in other continents a similar trend was recorded.

At the same time, floods and landslides occurred in the Mercosur Region leaving thousands of people without homes.

Climate models are consistent with each other in predicting higher frequency and intensity of heavy rainfall and the associated adverse effects, such as destructive winds and floods.

On the other hand, the greatest economic impacts of disasters derived from climatic phenomena are those caused by droughts, however the greatest number of disasters corresponds to the floods that have increased since 1980. In 2011, floods in China affected approximately 5 million people, of which 100,000 had to be evacuated, of similar magnitude, was the impact of the floods that occurred along the Indus Valley in Pakistan during the year 2010, on this occasion 20 million people had to be evacuated.

From the analysis, it appears that the absolute economic costs as a consequence of extreme weather events have been higher in developed countries, simply because of the higher value of goods at risk, however when costs are estimated as a fraction of gross domestic product, are the highest in developing countries, especially in emerging countries. Vulnerability contributes to the risk of disaster, the aspects that make it up are multiple, but in general in human systems are related to social conditions. The lack of structure and resources to face and mitigate the consequences of the extreme climate episode are central components of vulnerability.

As citizens of the world what can we do a quote by Paul Crutzen, Dutchman, Nobel Prize in Chemistry 1995, summarizes the future in the face of Climate Change: "From now on, we are the ones who decide what nature is and what it will be"

In this research we have selected the last extreme climatic episodes in the Mercosur Region.

ARGENTINIAN REPUBLIC

Geographical position

The Argentine Republic is located in the Southern Hemisphere, with respect to Ecuador and is located in the Western Hemisphere, with respect to the Greenwich Meridian. Located in the extreme south of the American continent, Argentina is the eighth largest country in the world and the second largest in Latin America in terms of area. It has a continental surface of 2.8 million km² and 966 thousand km² in the Antarctic continent. The continental surface extends 3,694 kilometers from north to south (between the parallel 21° and 55°) and 1,423 kilometers from east to west (between the meridian 53° and 63°).

Argentina has access to the South Atlantic Ocean and, through the Strait of Magellan, to the South Pacific. The country limits the east with the Eastern Republic of Uruguay, the Federative Republic of Brazil and the Atlantic Ocean; to the west and south with the Republic of Chile; and to the north with the Republics of Bolivia and Paraguay.



DROUGHT

At our meeting in Warsaw, we focused on the issue of drought in Argentina, a phenomenon that caused considerable economic loss. We tackled the same topic for this meeting, because the report "Counting The Cost: A year of Climate Breakdown" that was published by Christian Aid, a British organization that works to eradicate poverty, this report considers that the Argentine drought was one of the " 10 most destructive climate events of the year 2018 "worldwide, according to a world ranking.

In the case of Argentina, it indicates that "it was the worst drought in the country in 50 years". It was because the rainfall was below average from the end of 2017 until April 2018. Rain in some parts of the country was less than 50% of normal from December to February and up to 25% of normal levels in March . As a result, the soybean harvest was 31% lower than the previous year and corn production fell by 20%. Something serious, considering that together they make up 37% of our exports. In total, the production lost due to the drought cost Argentina 6 billion dollars. This puts us in the fifth place in the world of climatic disasters, behind hurricanes Florence (17 billion dollars) and Michael (15 billion) in the United States, fires in California (7.5-10 billion Camp Fire and 1.5-3 billion Woolsey Fire), the drought in Europe (7.5 billion) and the floods in Japan (7 billion in the months of June and July and 2.3-5.5 billion in Typhoon Jebi). The ranking is completed by the floods in China (3.9 billion in July and 5.4 billion in the storm Rumbia), the drought in Australia (5.8-9 billion dollars), the floods in Kerala, India (3.7 billion), the drought in Cape Town, South Africa (1.2 billion) and the super typhoon Mangkhut in China and the Philippines (1-2 billion). The global director of Climate Change of Christian Aid, Kat Kramer, said that "climate change is often considered a problem of the future" because its consequences are "so devastating" that we do not want to face "what is already happening". This report shows, he explained, that for many people climate change is having an impact on their lives right now.



Insurers S4, ROFEX, MUNICH RE and ARGENTINA CLEARING covered US \$ 82 million in this first campaign (US \$ 56 million for drought and US \$ 26 million for flood). Average premium paid: 3%. Coverage with OTC climate option and covering DROUGHT or FLOODING.

The government's position, amid the country's current deficit, can not subsidize premiums. It was not ruled out that it could be done in the future.

FEDERATIVE REPUBLIC OF BRAZIL

Geographical position

Brazil is the largest country in Latin America and the fifth largest in the world. Its limits are: to the south, Argentina, Uruguay and Paraguay; to the east, the Atlantic Ocean; to the north, Venezuela, Colombia, Guyana, Surinam and French Guiana; and to the west, Bolivia and Peru.



Floods and landslides

In the City of Rio de Janeiro, the precipitations of these last days provoked Cars dragged by the water, devastated houses, children in raft.

At least 10 people were killed by the torrential rains that fell since Monday night in Rio de Janeiro, the firefighters said, maintaining their efforts to rescue people trapped by landslides and major floods. Cars dragged by the current, collapse of precarious houses, children rescued in raft by firemen. The last three victims reported by the rescuers were two men drowned in neighborhoods west of the city and another who died in a landslide that had already led to the death of two women in the Babylonian favela, in the neighborhood of Leme. The firefighters confirmed the discovery of three bodies - a woman, a girl and a man - in a taxi buried in a street that links the neighborhoods of Botafogo and Copacabana. The most affected region was the southern zone, where well-off neighborhoods such as Ipanema, Copacabana and Botafogo are mixed with favelas built on the slopes of the giant hills.

A motorcyclist was dragged by the current in the neighborhood of Gávea and another man was electrocuted. In neighborhoods such as Copacabana and the Rocinha favela, the volume of rain exceeded 300 mm, almost triple the average for the whole month of

April. The recent phenomenon did not allow us to corroborate whether the State will subsidize those affected.



On the other hand, in January 2019, one of Vale's dams in an iron mine in the jurisdiction of Brumadinho, municipality of Minas Gerais (southeast Brazil), broke down and a spill with mineral waste buried the facilities of the company and various homes in rural areas.

Through social networks a recording was disseminated in which the progress of the spillage of mud and mineral residues is appreciated. In as much, the Firemen confirmed that the landslide destroyed several houses next to a neighboring town.

Waste

The president of Vale said that the causes of the accident are still unknown and that the dam that broke was deactivated three years ago, but still contained mineral waste, mainly silica, although it was mostly land.

According to the regional secretariat of Environment, the dam that broke had an approximate area of 27 hectares and a wall of about 87 meters high, and did not receive waste since 2015.

Previous accident

The accident occurred three years after the rupture of the Samarco dams, a mining company in which Vale has a stake, caused the biggest environmental catastrophe in Brazil, which caused 19 deaths due to a spill of mineral waste.

The tragedy of that time generated a wave of seven million cubic meters of mineral waste (nickel, silica and iron), mixed with another 55 million cubic meters of water.

The catastrophe caused 19 deaths, mostly in the mine itself, in the town of Bento Rodrigues, which disappeared from the map; caused incalculable damage along 650 kilometers in the basin of the Doce River and devastated other locations belonging to

Mariana, another municipality of Minas Gerais. The slippage of Mariana is treated in a meeting and individually Pery Saraiva Neto.



Minas Gerais

THE REPUBLIC OF CHILE

Geographical position

Located in the southwestern tip of South America, within the region called the Southern Cone, continental Chile has a high longitudinal development and little latitudinal development, extending by 39 degrees of latitude -from the tripartite point with Peru and Bolivia to the Diego Ramírez Islands. -, mainly in the mid-latitude area - the Tropic of Capricorn crosses the north of the country. Antarctic Chile is located in the high austral latitudes, from approximately 61 ° to the geographic South Pole.



DROUGHT

The studies available on the effects of the so-called climate change are not especially auspicious for the case of Chile. Even though the world is discussing the origin of this phenomenon and the alternatives to prevent the average temperature on the planet from increasing, its effects are already felt, and for our country there are several examples that could be cited.

As of December 2017, the presence of the La Niña phenomenon was confirmed, with a weak to moderate intensity in the Central Equatorial Pacific and the coasts of South America. As a result, the central coast of Chile had a greater occurrence of coastal clouds that dominated a large part of the summer of 2018. In addition, there was a greater intensity of the south wind above normal, a marine boundary layer more stable, well mixed and with a high moisture content of the air. In October, however, sea surface temperatures at the eastern end of the Tropical Pacific gave signs of a return to an El Niño country episode. There are several examples that could be cited. At the beginning of 2018, the country found itself in a worrying drought, the analysis of drought conditions and water availability was made with the perspective of a climatic phenomenon that develops cumulatively in the ecosystem, both in his aggravation as in

his recovery. In this sense and conceptually, the magnitude and negative effects of the drought develop over time. The sequence begins with the meteorological drought, continues with the hydrological drought and finally arrives at the agricultural drought, at which time the natural and artificial reserves are depleted and the lack of water becomes acute for the irrigation of the crops. In this way, the analysis must consider the temporality of the phenomenon. In this way, in short periods of time (less than 12 months) the Standardized Precipitation Index (IPE or SPI in English) can conclude the disappearance of drought conditions at local, regional and national levels, due to the greater amount of rainfall annual. However, in an analysis of periods longer than 12 months, drought conditions persist in several regions of the country, affecting the supply of water resources, especially from the regions of Atacama to Araucanía.

In May 2018, the first significant precipitations of the season in the central valley stopped falling, which is part of a more global phenomenon that is the mega-drought that affects the central zone, which already extends to space of a decade. Easter Island has experienced a significant decrease in rainfall; Some lake areas have dried up in some parts of the country, the average temperature increase in Talca has surpassed the world average, and large portions of Antarctic ice have diminished or simply disappeared. It is estimated that about 70% of the population of Chile lives in areas of drought or where the amount of rainfall has decreased, which allows us to measure the scope of the phenomenon. It does not seem to be temporary, since the predictive models that have been prepared in Chile anticipate that the average temperature by 2030 will continue to rise -it will do so with greater intensity in the northern part of the country-, and the level of the basins between Copiapó and Aysén will experience significant decreases, in some cases up to 30%.

The authorities of the MOP and the General Directorate of Water, made a balance for the driest season of the year. The reservoirs are at optimal levels to ensure the consumption of drinking water for this season.

Up to the river Molina fluvial station, inside the Fundo Santa Matilde in Lo Barnechea, authorities from the Ministry of Public Works and the General Directorate of Water arrived, to take stock of the state of river flows and the level of reservoirs facing the season where there is less rain in the country.

Undersecretary of Public Works, Lucas Palacios, informed that for this year the supply of drinking water for the population and the productive processes is assured. However,

the authority said that the flows of the Atacama rivers to the Region of Ñuble, will be between 70 and 50% below capacity.

This is due to the fact that there was less snow accumulation throughout the country, a phenomenon that has been progressive in recent years, which causes the flow of rivers to be less after the melting process. "The snow that has fallen is less and less, it is important that we take care of the water, the reality is that every time we have less water," said the undersecretary.

However, the deficit of the flows is covered by the reservoirs that are found throughout the country. According to the Government's information, the El Yeso reservoir in the Metropolitan Region is a little below average, in the case of Atacama and Coquímbo the water level is "positive", while the Maule and BíoBío reservoir is reasonable. The mega-drought conditions in the central zone are maintained, where 2018 is the fifth-driest year since 1950 with a 56% deficit, joining the year 2011 which was the fourth in the same period with 57%.

One of the instruments that is enhanced and possessed, is the Agricultural Insurance, whose objective is to facilitate access to Peasant Family Farming to agricultural insurance in order to have protection against weather events or unforeseen or unavoidable situations that damage their productive systems, compensating part of the production costs.



The traditional agricultural insurance

Within all the existent offer in the sector, the agricultural insurance is, by far, the best known. In fact, since the rules for obtaining the subsidy to the premium by the State were modified in 2014, its popularity among fruit producers has grown steadily.

It should be remembered that this insurance aims to cover production costs or expected yields in the harvest of a particular crop that is affected by a particular event, which are mostly related to climatic problems.

In the case of fruit trees, agricultural insurance, in general, covers losses related to the occurrence of frost and strong winds, and the fall of rain, hail and snow. However, it does not have coverage in case of droughts.

Coverages, on the other hand, usually reach up to 70% of the insured value, although this will depend on the franchise that the purchased policy has.

The franchise, meanwhile, must be understood as a threshold, so if the perceived damage exceeds it, the insurance must pay 100% of the loss, exculpating the producer of the deductible.

"If the franchise is 30% and the damage is less, nothing is paid. However, if a loss of 40% or more is reached, 100% must be paid. "

The personero indicates that there are also certain special conditions that franchises do, especially when talking about plantations located in specific places, which usually have greater sensitivity to certain events. On that list are, for example, the Casablanca grapes and the blueberries planted from Los Angeles to the south.

On the other hand, the plantations located in pre-cordilleran areas, where the occurrence of frosts is more constant, have higher franchises than those installed near the valleys. This situation, however, could vary depending on the existence or not of a frost control system.

The premium for this type of insurance is calculated based on the insured amount, which is multiplied by the risk rate. It should be noted that there are crops and areas with a higher risk, which in turn influences the variation in the rate. Thus, for example, the earlier and later fruit trees are more expensive, because they are more at risk of suffering from frost or rain.

Subsidy to premiums Until a while ago, talking about Agroseguros was related to a subsidy for small farmers, mainly oriented to annual crops. However, this situation has tended to change, after 2014, when its coverage was extended to all types of producers.

In any case, despite the opening, there is still much to be done, because fruit growers with this tool are still few. In fact, most are still small producers of annual crops.

Agricultural insurance is an interesting tool and now all producers can make sure. There is a cap of 80 UF per policy, not per rut as it happens with forest insurance. Thus, a larger farmer can do it by barracks, varieties and other parameters.

For the policy to be effective, the property must have divisions such as internal roads, irrigation channels, paddocks or something that allows insurers to differentiate between one area of another. In any case, it should be clarified that the companies will insure the entire property and not only the parties that are most at risk.

Regarding the amounts of the subsidy, it should be noted that the smallest will be able to access up to 60% of the premium value, while the largest will be financed up to 25%, with a ceiling of 80 UF.

In relation to the insured amount, the fruit trees are the great beneficiaries. If in the case of wheat and corn 75% and 85% of their yield is ensured, respectively, in fruit trees that varies. In any case, because it is a damage policy, production coverage could reach 90%.

In a fruit grower can hire an agricultural insurance, in addition to a productive one, such as fire with additional. Each policy has its cap of 80 UF of subsidy "

Conclusion

It can be observed from what is stated in this report, that climate change is a global problem, for which specific actions of global policy are required, although there are natural causes, the most relevant are anthropic.

The current life, with its patterns of consumption, transport, industrial production, which provides goods and services generates different greenhouse gases and conditions that affect the climate.

In this normative line referring to climate change has been implemented at the international level within the scope of the United Nations, the Framework Convention on Climate Change, the Kyoto Protocol and the Paris Agreement, all treat and advance in international regulations setting and diagnosing the situation, clarifying concepts, establishing rules and problems, a cooperation system and setting goals in order to avoid and mitigate climate change.

Latin America has a low penetration of insurance and this makes it possible to grow in a complex way. Nevertheless, in this work where the last catastrophic events were investigated, we observe that in the Mercosur Region, the presence of the State subsidizing the legal instruments of risk transfer, does not occur in all the countries, one of them is Argentina where the state subsidy does not yet exist. On the other hand, Brazil has rural support programs for small producers and the same thing happens in Chile. The State participates by co-financing premiums or insurance costs.

Attentive to this problem, as citizens we must each from its scope, meet the goal of greenhouse gas reduction.

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