



Genomma Lab.®  
Internacional

# SCENARIO-BASED CLIMATE CHANGE RISK ANALYSIS

TCFD / IFRS S2 SUMMARY

APRIL 2024

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03 Introduction and considerations

08 Identified climate risks

**TCFD** | TASK FORCE ON  
CLIMATE-RELATED  
FINANCIAL  
DISCLOSURES

# TO INCREASE ORGANIZATIONAL RESILIENCE, CLIMATE CHANGE IMPACTS MUST BE CONSIDERED

The concept of climate change-related risk has gained significant traction in recent years, given the magnitude of these risks as a consequence of an increased frequency and dimension of extreme meteorological phenomena caused by climate change.

To assess the physical implications of climate change, multiple models have been developed to project changes in future atmospheric and climatic conditions, which are reflected in the different scenarios described in the IPCC Assessment Reports.

Meanwhile, different organizations have described future projections of the implications related to structural, regulatory and technological changes associated with the transition to a low-carbon economy, based on the analysis of current trends,

mainly focused on the energy sector and its implications. The TCFD Recommendations, which are included in the recently released IFRS S2 international standard, were created to optimize and standardize the information emerging from the organizations' climate scenario analyses.

To assess the risks associated with climate change for *Genomma Lab Internacional* during 2023, the TCFD recommendations were used to create a scenario analysis considering the IPCC physical scenarios and the International Energy Agency (IEA) transition scenarios.



IPCC – Intergovernmental Panel on Climate Change  
TCFD – Task Force on Climate Related Financial Disclosures.  
IFRS – International Financial Reporting Standards

# THE PROCESS OF IDENTIFYING AND ANALYZING CLIMATE-RELATED RISKS TOOK INTO ACCOUNT BOTH QUANTITATIVE AND QUALITATIVE CRITERIA

TCFD GDR-A | IFRS S2 EST-22 (a), (b)

In 2023, we conducted a climate change risk analysis considering physical and transition climate scenarios. In this way, we updated our first climate change-related risk identification exercise.

When identifying and assessing risks, we consider:

- Statistical data from the closest weather stations to each site studied, as well as newspaper and bibliographic records of weather-related events.
- An assessment of the mitigation practices and measures implemented in each industrial park and globally, including, but not limited to, energy, water, and waste management.
- The regulatory context in Mexico regarding climate change, its trend, future commitments and climate strategy contained in the Climate Change program and the NDC.

- Current climate management, technology, and market trends in the Mexican sector.
- Current sustainability trends in companies similar to Genomma, specific guidelines and recommendations for energy efficiency in pharmaceutical operations.

The physical risk identification and assessment included quantitative variables based on climate statistics and regionalized climate change scenarios for Mexico (average temperatures, maximum temperatures, precipitation, etc.).

While for the transition risk assessment, semi-quantitative variables were established, combining qualitative and quantitative components based on an analysis of current trends to estimate risk impact on different aspects of the company (Results, Reputation, Finance, etc.).

In both cases, risk magnitude was calculated as a function of the different variables assessed on a semi-qualitative scale, characterizing the risk as:

Risk	Description
Very High	Urgent assessment and implementation of immediate actions.
High	Actions must be assessed for implementation.
Medium	Actions must be assessed.
Low	Follow-up is necessary, however, action assessment is not so relevant.
Very Low	Preventive or adaptive actions do not need to be assessed.

# CLIMATE CHANGE-RELATED PHYSICAL RISK ANALYSIS CONSIDERED THE SHARED SOCIOECONOMIC TRAJECTORIES DESCRIBED IN THE IPCC SIXTH ASSESSMENT REPORT

TCFD EST-C | IFRS S2 EST-22

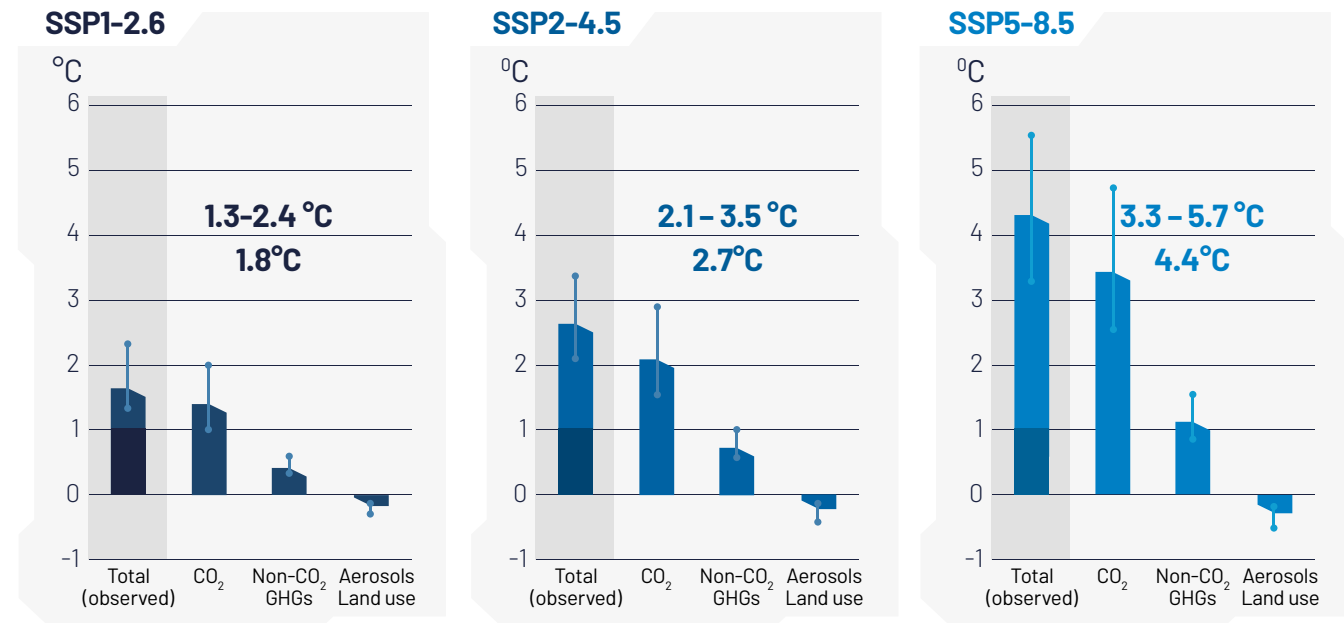
Three scenarios were considered in the climate change-related physical risk analysis: a scenario aligned with the Paris Agreement (SSP1-2.6), an intermediate scenario (SSP2-4.5) and the worst-case scenario (SSP5-8.5). The study was complemented with a water stress analysis using the Aqueduct platform.

**a. SSP1-2.6** - which forecasts a global average temperature increase of between **1.3 y 2.4 °C hacia 2050**.

**b. SSP2-4.5** - which forecasts a global average temperature increase of between **2.1 y 3.5 °C hacia 2050**.

**c. SSP5-8.5** -which forecasts a global average temperature increase of between **3.3 y 5.7°C hacia 2050**.

## Temperature increase to 2100



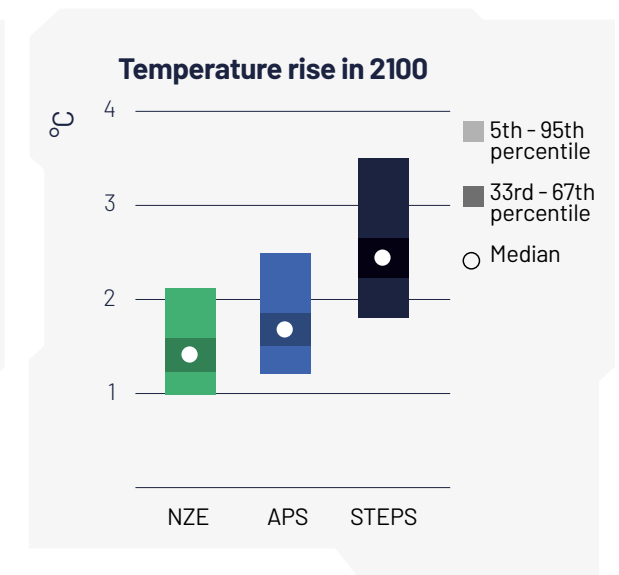
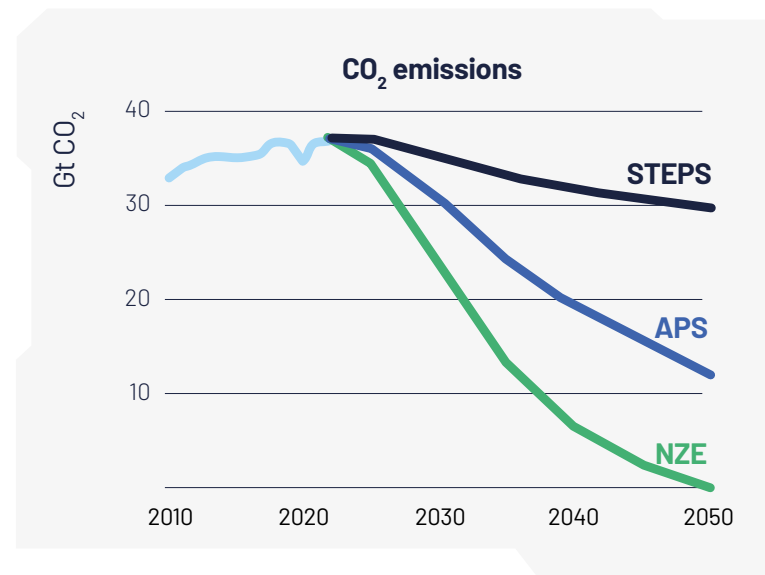
# CLIMATE CHANGE-RELATED PHYSICAL RISK ANALYSIS CONSIDERED THE SHARED SOCIOECONOMIC TRAJECTORIES DESCRIBED IN THE IPCC SIXTH ASSESSMENT REPORT

TCFD EST-C | IFRS S2 EST-22

To assess the transition risks, two scenarios described by the International Energy Agency (IEA) in its 2023 World Energy Outlook were considered.





**a. Net Zero Emissions by 2050 (NZE)** - which forecasts a global average temperature increase of **1.5 °C by 2050** compared to the pre-industrial period with a 50% probability.

**b. Announced Pledges Scenario (APS)** - which forecasts a global average temperature increase of **1.7 °C by 2050** compared to the pre-industrial period with a 50% probability. The analysis of this scenario was complemented by an analysis of the country's commitments to sustainability and climate change matters.



# CERTAIN LIMITATIONS AND AREAS THAT ADD UNCERTAINTY TO CLIMATE RISK ANALYSIS WERE IDENTIFIED

IFRS S2 EST- 9, 10, 11, 22

Climate risks	Information source	Limitations / Uncertainties
 <b>Physical hazards (water stress)</b>	<i>Aqueduct, a tool from the World Resources Institute (WRI)</i>	El modelo de la herramienta es el CMIP6. La herramienta emplea tres escenarios diferentes: El Optimista (SSP2-2.6), <i>Business as Usual</i> (SSP3-7.0) y el Pesimista (SSP5-8.5).
 <b>Physical risks</b>	SSP1-2.6: MPI-ESM1-2-HR Model SSP2-4.5 and SSP5-8.5: CORDEX Model. Mexico regionalized scenarios by UNAM's Atmospheric and Environmental Sciences Informatics Unit ( <i>Unidad de Informática para las Ciencias Atmosféricas y Ambientales, UNIATMOS</i> )	UNAM's SSP2-4.5 and SSP5-8.5 Mexico regionalized scenarios were examined using the CORDEX model, whereas the SSP1-2.6 scenario, which was not regionalized to Mexico, was produced using the MPI-ESM1-2-HR model.
 <b>Physical risks (tropical cyclones)</b>	IPCC WGI Interactive Atlas	Cyclones are weather systems characterized by winds circulating around a low-pressure center over warm, tropical oceans. Due to their complexity, it is difficult to assess them with the variables taken from the scenarios, so the "sea surface temperature" variable from the WGI Interactive Atlas was considered. This implies uncertainty in their assessment because the model resolution is quite high and the data obtained do not accurately reflect the values of the region under examination.
 <b>Transition risks</b>	World Energy Outlook 2023, IEA IEA, <i>Latin America Energy Outlook</i> , 2023 Mexico NDC	There are limitations and uncertainties involved in identifying transition risks, particularly in the Net Zero scenario analysis, as it describes the scenario from a global perspective and does not provide Mexico-specific parameters. The analysis of this scenario and the APS scenario was complemented with Mexico's Nationally Determined Contributions (NDC).

A digital globe is the central focus, surrounded by four hands (two at the top, two at the bottom) in a dark green, semi-transparent style. The background is filled with a complex network of white and light green lines, suggesting a data or network structure. The overall aesthetic is futuristic and tech-oriented.

# IDENTIFIED CLIMATE RISKS



# TO ASSESS PHYSICAL RISKS IN CLIMATE SCENARIOS, THE FOLLOWING VARIABLES WERE TAKEN INTO ACCOUNT

IFRS S2 EST- 9, 10, 11, 22

## Sensitivity to impacts



Assessed using historical information

- Exposure to weather events
- Geographical location
- Influence on resource availability, activities

## Potential impact



Assessed using a qualitative scale

- Economic impact on operations and the human factor

## Responsiveness



Assessed using interviews

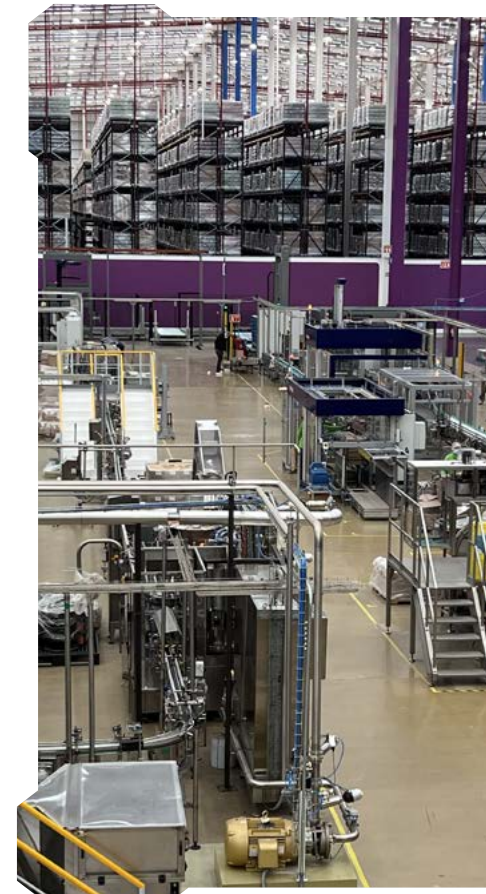
- Exposure to weather events
- Geographical location
- Influence on resource availability, activities

## Exposure in climate scenario



Assessed using climate scenario modeling

- IPCC scenarios, different time horizons
- Change in temperature and precipitation conditions



# THE PHYSICAL RISK ANALYSIS INCLUDED NINE FACILITIES, BOTH OWNED AND OUTSOURCED, WITH GENOMMA LAB INTERNACIONAL OPERATIONS,

WHICH ARE CURRENTLY EXPOSED TO DROUGHT AND WATER STRESS, PRECIPITATION AND FLOODING, AND HEAT WAVES

TCFD EST-A, EST-B | IFRS S2 EST-9, 10, 22

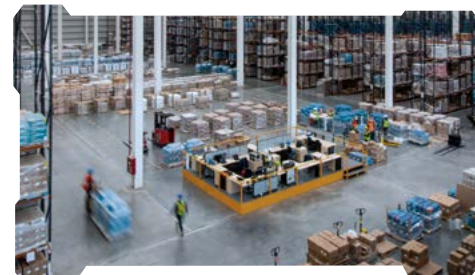
**Exposure level**

- Very High
- High
- Medium
- Low
- Very Low

## Owned Locations



**San Cayetano Production Center and CEDIS**



**Puebla CEDIS / Doña Rosa CEDIS**

## Outsourced Locations



**CEDIS Atizapán (ATZ), Mérida (MER), Villahermosa (VSA), Tijuana (TIJ), Culiacán (CUL)**

Current Exposure	Owned Locations			
	SAN CAYETANO	HQ	PUEBLA	DOÑA ROSA
Droughts	●	●	●	●
Water stress	●	●	●	●
Precipitation and flooding	●	●	●	●
Heat waves	●	●	●	●
Cold waves	●	●	●	●

### Current Exposure

	ATZ	MER	VSA	TIJ	CUL
Droughts	●	●	●	●	●
Water stress	●	●	●	●	●
Precipitation and flooding	●	●	●	●	●
Heat waves	●	●	●	●	●
Cold waves	●	●	●	●	●
Tropical cyclones	●	●	●	●	●

# THE PHYSICAL RISK ANALYSIS INCLUDED NINE FACILITIES, BOTH OWNED AND OUTSOURCED, WITH GENOMMA LAB INTERNACIONAL OPERATIONS,

WHICH ARE CURRENTLY EXPOSED TO DROUGHT AND WATER STRESS, PRECIPITATION AND FLOODING, AND HEAT WAVES

TCFD EST-A, EST-B | IFRS S2 EST- 9, 10, 22

**Exposure level**

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- High
- Medium
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- Very Low

## Owned Locations

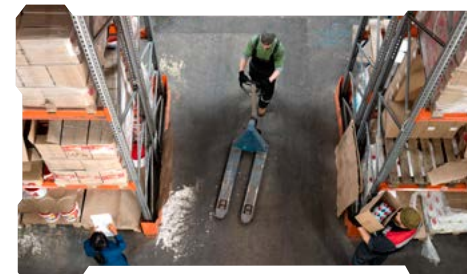


**San Cayetano Production Center and CEDIS**



**Puebla CEDIS / Doña Rosa CEDIS**

## Outsourced Locations



**CEDIS Atizapán (ATZ), Mérida (MER), Villahermosa (VSA), Tijuana (TIJ), Culiacán (CUL)**

**Current Exposure**

Droughts	<span style="color: lightgreen;">●</span> 25%	<span style="color: yellow;">●</span> 75%	
Water stress	<span style="color: orange;">●</span> 75%	<span style="color: red;">●</span> 25%	
Precipitation and flooding	<span style="color: lightgreen;">●</span> 50%	<span style="color: yellow;">●</span> 25%	<span style="color: red;">●</span> 25%
Heat waves	<span style="color: green;">●</span> 75%	<span style="color: lightgreen;">●</span> 25%	
Cold waves	<span style="color: yellow;">●</span> 25%	<span style="color: orange;">●</span> 25%	

**Current Exposure**

Droughts	<span style="color: yellow;">●</span> 60%	<span style="color: orange;">●</span> 40%	
Water stress	<span style="color: lightgreen;">●</span> 40%	<span style="color: red;">●</span> 60%	
Precipitation and flooding	<span style="color: yellow;">●</span> 40%	<span style="color: orange;">●</span> 40%	<span style="color: red;">●</span> 20%
Heat waves	<span style="color: lightgreen;">●</span> 20%	<span style="color: yellow;">●</span> 60%	<span style="color: red;">●</span> 20%
Cold waves	<span style="color: green;">●</span> 40%	<span style="color: lightgreen;">●</span> 20%	<span style="color: yellow;">●</span> 40%
Tropical cyclones	<span style="color: green;">●</span> 40%	<span style="color: lightgreen;">●</span> 20%	<span style="color: orange;">●</span> 40%

# SAN CAYETANO PRODUCTION CENTER

IFRS S2 EST- 9, 10, 11



## Exposure in scenario

The main threats to the San Cayetano Production Center vary according to the scenario, as shown below, with water stress and heat waves being the most significant.



### SSP1-2.6 Scenario

The main threats are water stress, precipitation and flooding, and heat waves.

### SSP2-4.5 Scenario

The main threats are droughts, water stress and heat waves.

### SSP5-8.5 Scenario

The main threats are droughts, water stress and heat waves.

#### Escenario SSP1-2.6

	ST	MT	
Droughts	Green	Green	Annual
Water stress	Orange	Red	
Precipitation and flooding	Red	Red	ST March to June MT March to September
Heat waves	Red	Red	ST March to June MT March to September
Cold waves	Green	Green	Annual

#### Escenario SSP2-4.5

	ST	MT	
Droughts	Red	Red	June to September
Water stress	Orange	Red	
Precipitation and flooding	Green	Orange	ST Annual MT Sept. to Dec
Heat waves	Red	Red	Annual
Cold waves	Orange	Green	ST: December to March MT Annual

#### Escenario SSP5-8.5







	ST	MT	
Droughts	Red	Red	March to September
Water stress	Red	Red	
Precipitation and flooding	Green	Green	Annual
Heat waves	Red	Red	Annual
Cold waves	Yellow	Green	ST December to March MT Annual

# SAN CAYETANO PRODUCTION CENTER

IFRS S2 EST- 9, 10, 11

We identified risks to production and facilities and to the supply and distribution chain based on the Production Center's activities.

However, the risks related to production, facilities and the distribution chain range from Very Low to Very High.

Risk with no mitigation actions		SSP1-2.6	SSP2-4.5	SSP5-8.5	
	<b>Droughts</b> Limited production resulting from a reduction in the amount of water available in wells	Very low	Medium	Medium	ST / MT
	<b>Heat waves</b> Facilities impacted by wildfires and urban fires due to extreme heat conditions	Medium	Medium	Medium	ST / MT
	<b>Heat waves</b> Power grid demand saturation and power supply reductions or outages	Very low	Low	Low	ST / MT
	<b>Droughts</b> Need to further treat water withdrawn for production purposes	Very low	Low	Low	ST / MT
	<b>Droughts</b> Investment in saving, efficiency, treatment and recycling technology in own facilities	Very low	Medium	Medium	ST / MT
	<b>Droughts</b> Disruption of operations due to power outages during heavy rainfall	Low	Very low	Very low	ST
		Low	Low	Very low	MT









# SAN CAYETANO PRODUCTION CENTER

IFRS S2 EST- 9, 10, 11

We identified risks to production and facilities and to the supply and distribution chain based on the Production Center's activities. However, the risks related to production, facilities and the distribution chain range from Very Low to Very High.

When considering risks in relation to Genomma's current response capacity, magnitudes decrease to "Very Low" in all cases.

Risk with mitigation actions		SSP1-2.6	SSP2-4.5	SSP5-8.5	
	<b>Droughts</b> Limited production resulting from a reduction in the amount of water available in wells	Very low	Very low	Very low	ST / MT
	<b>Heat waves</b> Facilities impacted by wildfires and urban fires due to extreme heat conditions	Very low	Very low	Very low	ST / MT
	<b>Heat waves</b> Power grid demand saturation and power supply reductions or outages	Very low	Very low	Very low	ST / MT
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	<b>Droughts</b> Disruption of operations due to power outages during heavy rainfall	Very low	Very low	Very low	ST
		Very low	Very low	Very low	MT




# SAN CAYETANO PRODUCTION CENTER

IFRS S2 EST- 9, 10, 11



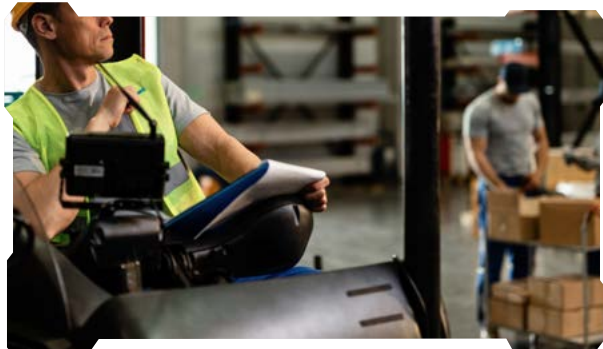
Risks related to the supply chain cannot be assessed because the study's scope does not include specific supplier locations.

However, they are generally expected to be High risks.

		SSP1-2.6 + 1.8°C Water stress close to the current one More rainfall in the MT	SSP2-4.5 + 2.7°C Increased water stress Less rainfall	SSP5-8.5 + 4.4°C Increased water stress Less rainfall		
	<b>Droughts</b> <b>Heat waves</b>	Reduction in the availability of agricultural raw materials used as active ingredients in OTC and CP products	High	High	Very High	ST / MT
	<b>Droughts</b> <b>Heat waves</b>	Rise of pests in crop fields, limiting production and raw material quality	Medium	High	Very High	ST / MT
	<b>Heat waves</b>	Decline in honeybee population and reduced availability of royal jelly as an active ingredient	High	High	Very High	ST / MT

# FOR OUTSOURCED LOCATIONS

IFRS S2 EST- 9, 10, 11

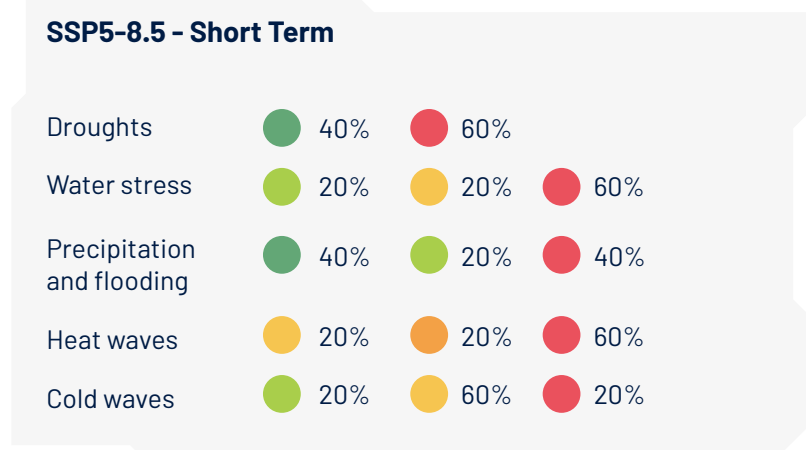
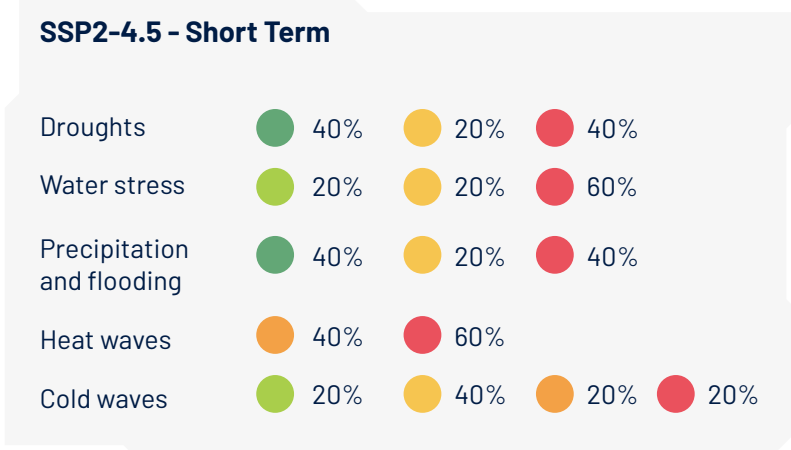
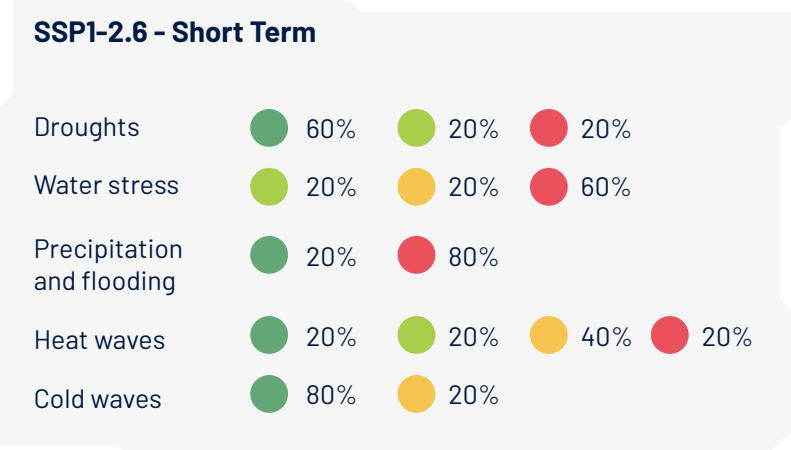


**CEDIS**  
**Atizapán (ATZ)**  
**Mérida (MER)**  
**Villahermosa (VSA)**  
**Tijuana (TIJ)**  
**Culiacán (CUL)**

<b>Precipitation and flooding</b>	Contamination of finished product due to flooding
<b>Precipitation and flooding</b>	Power supply failure
<b>Tropical cyclones</b>	Damage to CEDIS infrastructure

**Exposure level**

- Very High
- High
- Medium
- Low
- Very Low





# FOR OUTSOURCED LOCATIONS

IFRS S2 EST- 9, 10, 11

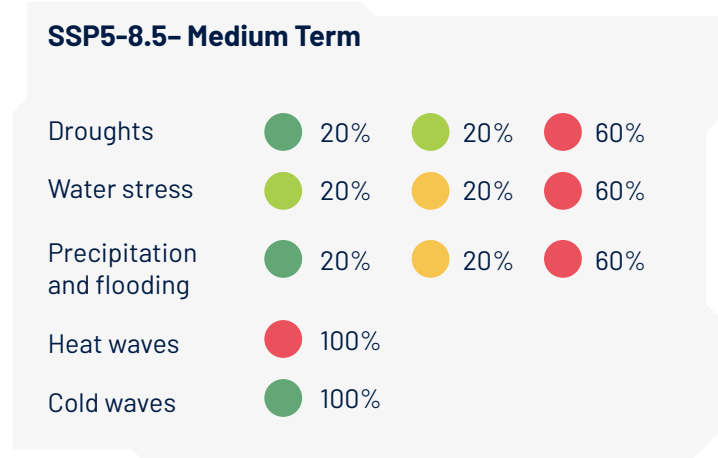
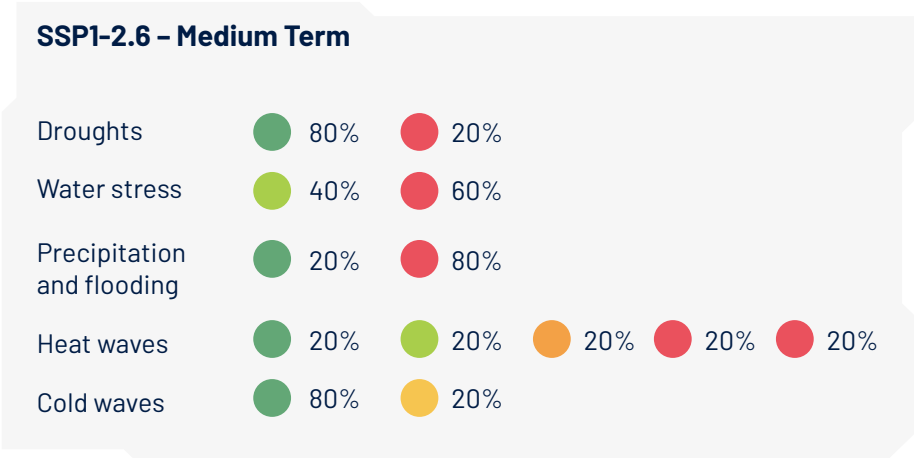


**CEDIS**  
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<b>Precipitation and flooding</b>	Contamination of finished product due to flooding
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**Exposure level**

- Very High
- High
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- Low
- Very Low

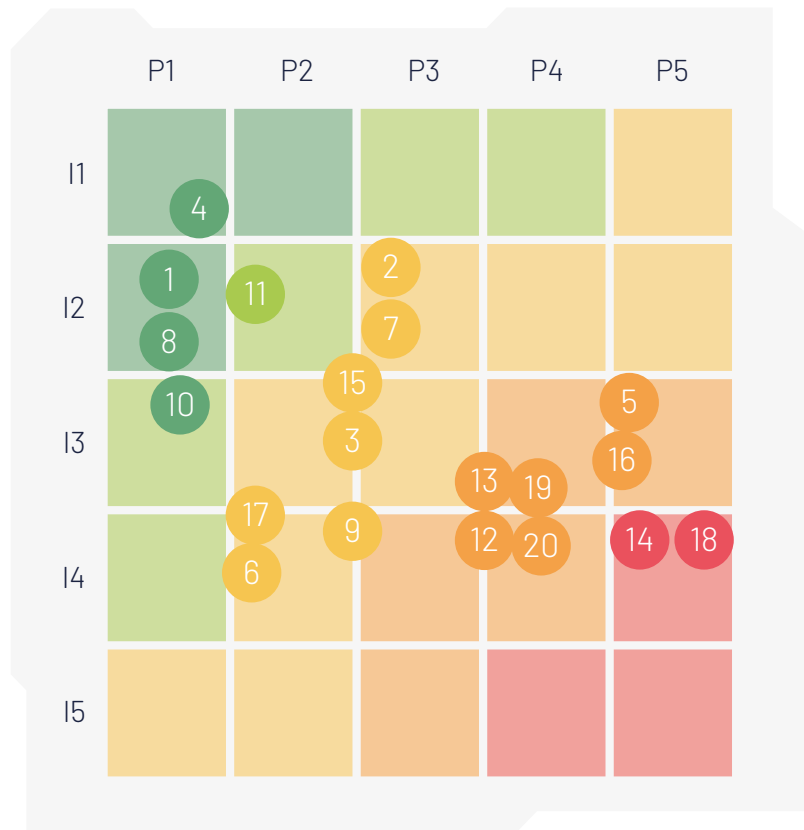


# IN THE NZE SCENARIO, A TOTAL OF 20 TRANSITION RISKS WERE IDENTIFIED,

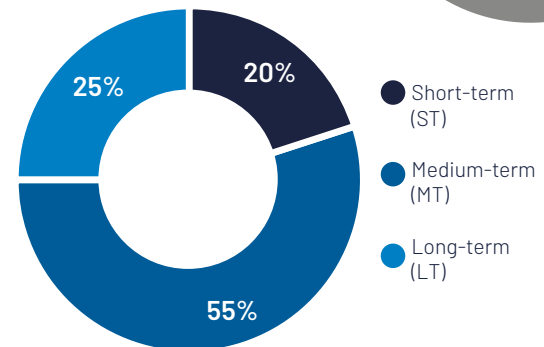
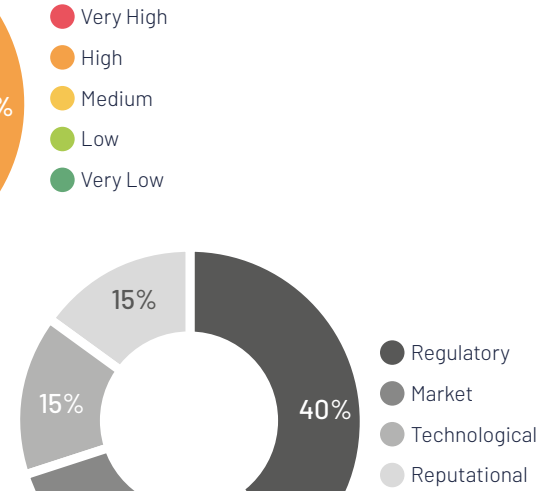
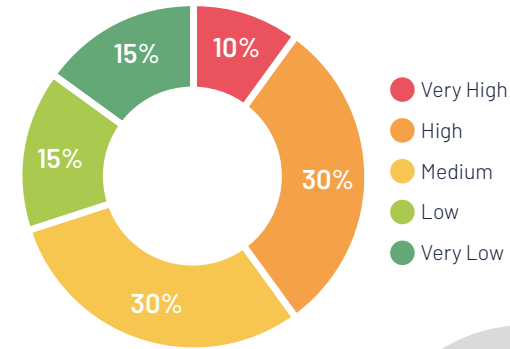
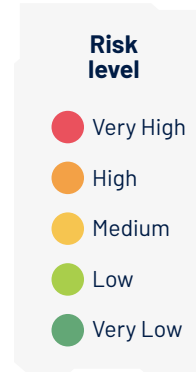
20% COULD OCCUR IN THE MEDIUM TERM, 55% IN THE SHORT TERM, AND 25% IN THE LONG TERM

IFRS S2 EST- 9, 10, 11

The risk heat map shows that the majority of risks are classified as High or Very High Probability, as well as Medium and High Impact.



- 8 Regulatory
- 6 Market
- 3 Technological
- 3 Reputational
- 4 short-term risks
- 11 medium-term risks
- 5 long-term risks
- 2 Very High magnitude
- 6 High magnitude
- 6 Medium magnitude
- 3 Low magnitude
- 3 Very Low magnitude



# IN THE NZE SCENARIO, A TOTAL OF 20 TRANSITION RISKS WERE IDENTIFIED,

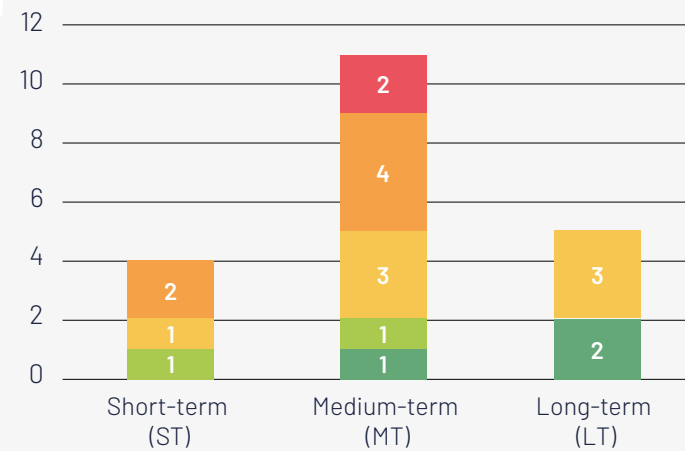
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IFRS S2 EST- 9, 10, 11

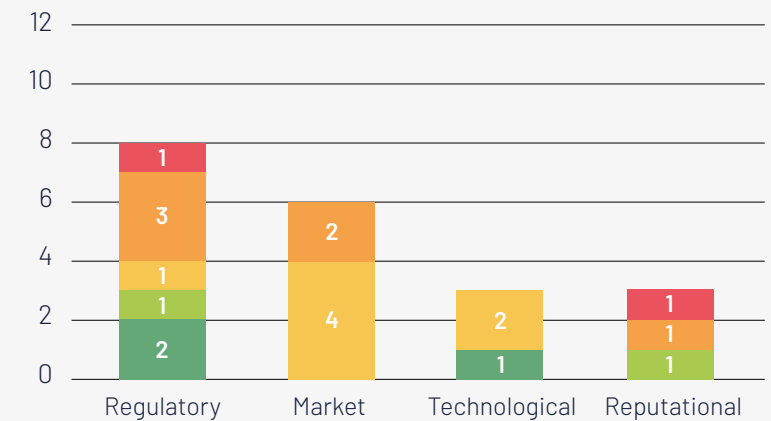
Risks are mainly concentrated in the medium term; risks with the highest magnitudes are found mostly in the medium term, and those of low magnitudes in the short term. Long-term risks range from Medium to Very Low.

On the other hand, the risks are mostly regulatory or market-related and, to a lesser extent, technological and reputational.

### Risk level by time horizon



### Risk level by risk type

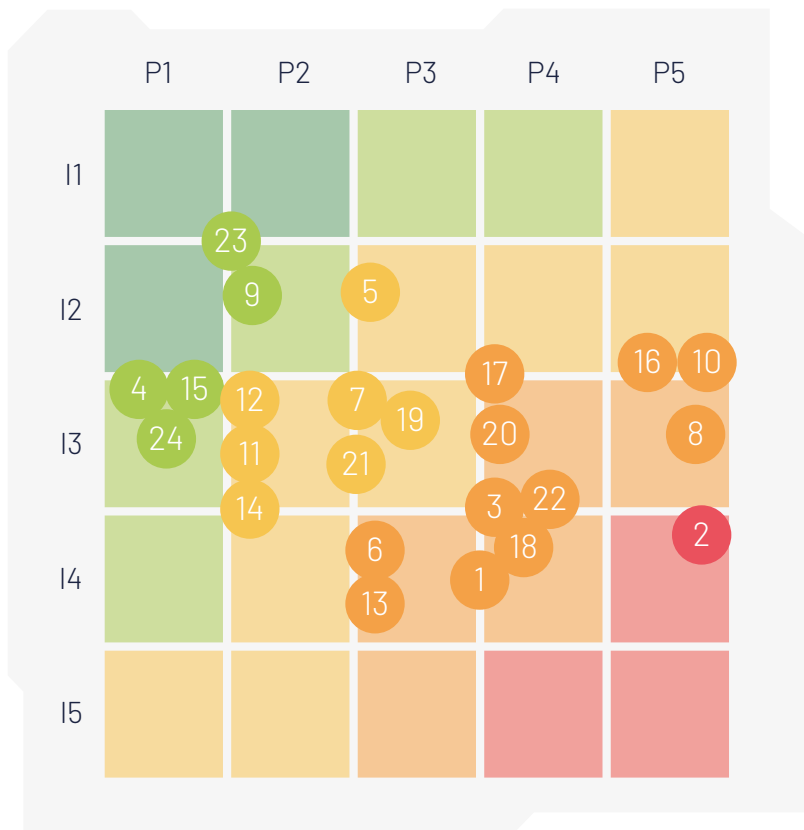


# IN THE APS SCENARIO, A TOTAL OF 24 RISKS WERE IDENTIFIED,

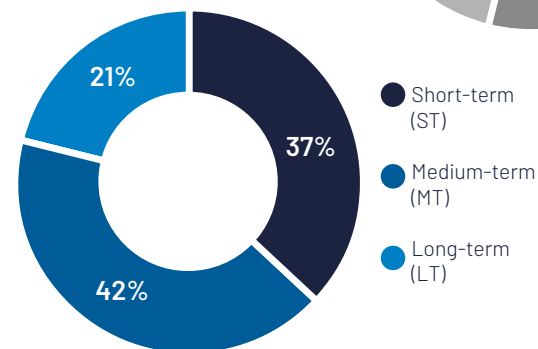
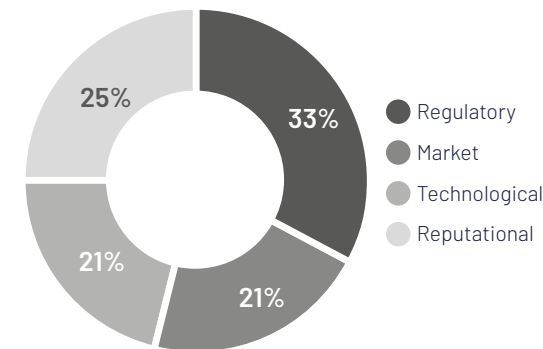
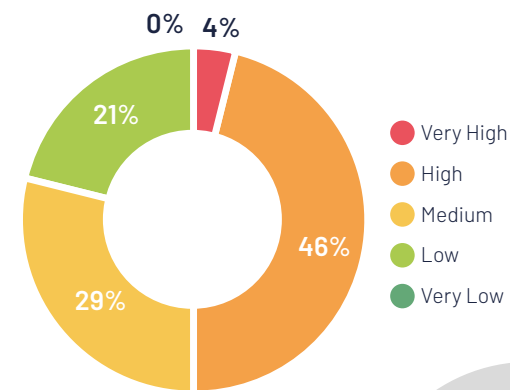
OF WHICH 37% MAY OCCUR IN THE SHORT TERM, 42% IN THE MEDIUM TERM, AND 21% IN THE LONG TERM

IFRS S2 EST- 9, 10, 11

The risk heat map shows that most of the risks have a Medium and High potential impact and that they are concentrated in High and Very High probabilities.



- 8 Regulatory
- 5 Market
- 5 Technological
- 6 Reputational
- 9 short-term risks
- 10 medium-term risks
- 5 long-term risks
- 1 Very High magnitude
- 11 High magnitude
- 7 Medium magnitude
- 5 Low magnitude



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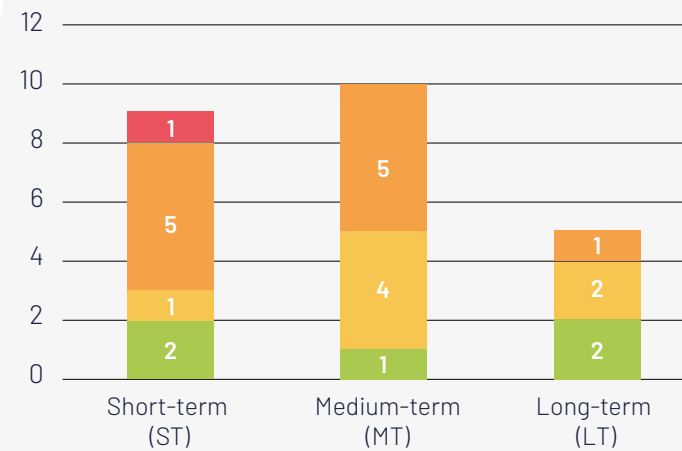
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IFRS S2 EST-9, 10, 11

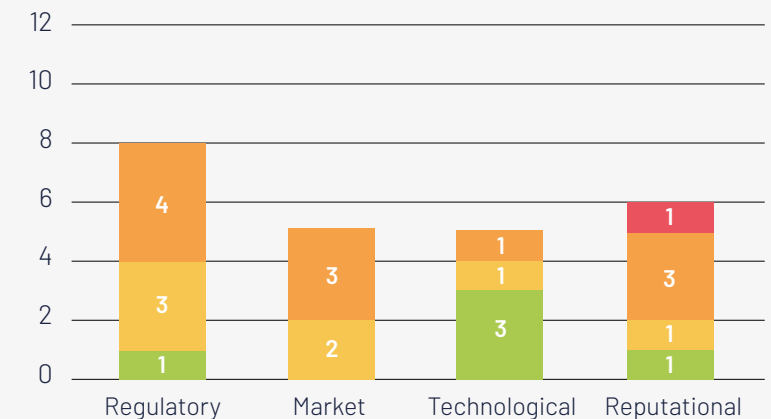
Risks are concentrated in the short and medium term, with the highest magnitudes of risk in the short term. For the most part, risks are High Magnitude in the short and medium term, and the highest magnitude risk is in the short term.

Risks are mainly regulatory and reputational, with these two categories also accumulating the largest number of High Magnitude risks.

### Risk level by time horizon










### Risk level by risk type



# TRANSITION RISKS WITH THE HIGHEST MAGNITUDES

TCFD EST-A, EST-B

IFRS S2 EST- 9, 10

Risk factor	Scenario	Risk description	Related impact	Time horizon	Risk type	Risk level	Mitigation initiative
 <b>Integration of renewable energy into the energy matrix</b>	NZE APS	Genomma's environmental commitment challenged for failing to implement renewable energy projects in the energy mix	Reduced access to capital	MT	Reputational	Very High	Cogeneration project
 <b>Extended Producer Responsibility Regulation</b>	NZE	Facing fines for failure to comply with the plastic recovery goals established by the authority	Increase in indirect expenses to pay fines	MT	Regulatory	Very High	Waste Management
 <b>Increased stakeholder sustainability expectations</b>	NZE APS	Genomma's environmental commitment challenged for lack of commitment to key sustainability issues (fuel substitution, circularity, emission reduction)	Reduced access to financing	MT	Reputational	High	Sustainability Strategy
 <b>Carbon tax imposition</b>	NZE APS	Carbon tax imposed on GHG emissions that exceed the regulatory limitations	Investment loss due to non-compliance with GHG emissions regulation	ST	Regulatory	High	Emissions reduction strategy
 <b>Regulation to promote clean or low-emission transportation</b>	NZE APS	Transportation service providers raise prices in the face of transition	Increase in outsourced transportation expenses	MT	Market	High	
 <b>Eco-labeling regulation</b>	APS	Genomma's commitment to sustainability challenged for using unsupported or unrecognized environmental labels	Reduced access to capital	ST	Reputational	High	Life-cycle assessment execution
 <b>Impacts to sustainability from the value chain</b>	APS	Negative impact on Genomma's image due to environmental effects and climate inaction linked to its value chain	Increased investment in public image and environmental offsetting	ST	Reputational	High	



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