

# HEATWAVES AND THE 2024 GENERAL ELECTIONS IN MEXICO

Natural Hazards and Elections Series

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## EXECUTIVE SUMMARY

Mexico has experienced a consistent rise in temperatures since 2015, with 2024—the year of general elections—recording the highest on record. Despite the numerous hazards associated with climate change and the immense administrative challenges posed by the renewal of over 20,000 federal and local positions, the National Electoral Institute (Instituto Nacional Electoral, INE) and lower-tier electoral management bodies (EMBs) succeeded in installing 99.85 per cent of polling stations, with no significant incidents reported on election day, 2 June.

The research conducted to address the key question guiding this case study—the extent to which national and local electoral bodies were prepared to face the adverse effects of heatwaves during the June 2024 elections—reveals that the professionalism of EMB staff enabled them to effectively manage the risks encountered. Although they were equipped with handbooks on risk management and crisis response for various hazards, these materials did not cover heatwaves, nor was extreme heat considered a significant concern by electoral authorities.

Some prescriptive lessons learned that may be useful for Mexico's electoral stakeholders—as well as for those in other countries—include the following:

- Special measures should be planned to mitigate the impact of heat on both voters and election officials.

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- Strengthening the INE's local structures in each state, as well as local EMBs, and ensuring they are provided with adequate resources, is essential to effectively address anticipated risks.
- Standardizing national responses to natural risks such as heatwaves remains a critical and unresolved task, along with the need for more effective inter-institutional cooperation.

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## INTRODUCTION

Mexico has significant climatic diversity. As such, it is exposed to a wide range of natural hazards associated with climate change, including heatwaves and temperature increases. According to official sources, Mexico has experienced a consistent increase in temperatures since 2015, with 2024—the year of the federal and local elections under discussion—registering the highest temperatures. Although the impacts vary widely among regions, heatwaves have caused droughts, damage to electrical infrastructure and diverse health issues—ranging from dehydration and extreme heat stroke to fatalities. All these factors have affected election management in various ways.

On 2 June 2024, Mexico held the largest election in its history, renewing over 20,000 federal and local positions. Despite the enormous administrative, logistical and climate challenges involved, the INE and lower tier EMBs in the federative entities managed to install 99.85 per cent of the polling stations planned. Nationally, the electoral participation rate was recorded at 61 per cent, a slight decrease on the 63.4 per cent in 2018 and 61.8 per cent in 2012. Election day passed off without serious incident. This success was largely due to the professionalism of the personnel within the executive structure of the INE and the local electoral bodies, organized as a nationwide, professionalized electoral service. Their experience and knowledge of the political, social, cultural and climatic conditions in each state and region enabled them to effectively manage the risks encountered. Additionally, they were provided with handbooks on risk management and crisis management—known as action protocols—for fires, floods, heavy rains, volcanic ash falls and geological phenomena, among others. In the event, extreme weather was not disruptive to their operations in 2024 but this cannot be taken for granted in future electoral cycles. Systemic increase in temperatures can negatively impact key moments of the electoral process: electoral campaigns, the installation of polling stations and the attendance of polling station officials, voter well-being, and voter turnout on election day.

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**Systemic increase in temperatures can negatively impact key moments of the electoral process.**

Given the evidence of the systematic increase in the national average maximum temperature in Mexico since 2015—reaching its peak in 2024—this case study addresses the following pertinent questions:

- To what extent were the national and local electoral bodies—the INE and the Local Public Electoral Organizations (Organismos Públicos Local

Electoral, OPLE)—prepared to face the adverse effects of heatwaves during the June 2024 elections? Was the central EMB aware of the potential risks associated with high temperatures, particularly the dramatic rises between May and June?

- In the face of extreme heat, what measures did the INE take to guarantee the safety and well-being of both the citizens participating in the elections and its staff? What measures were implemented to ensure the continuity of the electoral process?
- To what extent did electoral organizations have in place appropriate risk management and crisis management protocols?

To answer these questions, three activities were undertaken: (a) a review of the Constitution, electoral law and procedures, as well as secondary regulations, institutional agreements, the institutional strategic plan, and the INE's risk protocols; (b) five interviews with high-level electoral officials (see Annex A for the interview content); and (c) analysis of official data regarding polling stations, contingencies and voter turnout. The findings of the case study are presented as follows: first, a general overview of the institutional and legal context of elections in Mexico, particularly regarding the national and local EMBs. Second, detail on the natural hazards—in particular, the heatwaves detected in the country—and their major impacts in some states. The third section outlines the measures adopted by the electoral bodies to safeguard the federal and local elections from these natural hazards. The final section offers some conclusions in the form of lessons learned.

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## 1. INSTITUTIONAL STRUCTURE

In Mexico, the transition to democracy focused on moving from elections controlled and manipulated by the incumbent government to competitive elections (Méndez de Hoyos 2006: 18–19). This entailed the creation of institutions capable of earning the public's trust, such as the Federal Electoral Institute (Instituto Federal Electoral, IFE) created in 1990. It was transformed in 2014 into the INE in a significant reform, giving rise to Mexico's current electoral system.

With the 2014 reform, the INE also became responsible for local elections. According to the Political Constitution of the United Mexican States (Mexico 1917), the organization of elections is a state function carried out through the INE and the OPLE (article 41), guided by principles such as certainty, legality, independence, impartiality, objectivity and maximum transparency. The highest political directive body of the INE is the General Council, composed of a presiding councillor and 10 electoral councillors with vote and voice. In addition, there are councillors from the legislative branch, representatives of the national political parties, and an executive secretary, all of whom have a voice but no vote. The selection of the INE councillors involves a technical evaluation, but the final selection is based on political criteria, carried out by

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two-thirds of the Chamber of Deputies. This method produces a combination of electoral expertise and partisan affiliation.

The INE is organized in two levels. First, a federal/central level, where there is the General Council, the Executive General Board, and the Executive Secretariat (Mexico 2014, General Law of Institutions and Electoral Procedures (revised October 2024) [Ley General de Instituciones y Procedimientos Electorales], article 34.1). Second, a state/local level, where the Institute performs its functions through (a) 32 delegations, one in each state; and (b) 300 sub-delegations, one in each single-member electoral district.

The Executive General Board (Junta General Ejecutiva, JGE) is chaired by the president of the General Council and includes the executive secretary and the executive directors of the following areas: Federal Voter Registry, Political Parties, Electoral Organization, National Professional Electoral Service, Electoral Training and Civic Education, and Administration, as well as the heads of the Technical Oversight Unit, the Electoral Dispute Technical Unit, and the Technical Coordination Unit with the OPLE (Mexico 2014: article 47.1) (see Annex B).

**In each state, the INE has a delegation composed of the local executive board and district executive boards.**

Although the JGE was created to implement or execute the decisions of the General Council, institutional functioning at the national level increasingly depends on the former, which, among other important tasks, is responsible for electoral risk management and crisis handling. Its mandate is to organize the elections and avoid disruption to the electoral cycle's various stages. In each state, the INE has a delegation composed of the local executive board and district executive boards, and temporarily during the electoral processes, local or district councils (Mexico 2014: article 61).

The OPLE are the institutions that organize local elections for governorships, state congress seats and municipal elections in each of the 32 federative entities.<sup>1</sup> Each OPLE has a higher directive body called the General Council, composed of a presiding councillor and six electoral councillors. All are elected and can be removed by the INE's General Council. As noted, both the INE and the OPLE have a dual structure. On the one hand, there is the highest decision-making political body—the General Council—and on the other, an executive and technical structure—the JGE—composed of public servants, members of the national professional electoral service, who are operationally responsible (Mexico 2014: article 30.3).

<sup>1</sup> According to the Constitution, the OPLE exercise their functions in the following areas: (a) the rights and access to the prerogatives of candidates and political parties; (b) civic education; (c) preparation of election day; (d) printing of documents and production of electoral materials; (e) scrutineering and counting as established by law; (f) declaration of validity and certification in local elections; (g) counting the election of the head of the executive; (h) preliminary results, polls or opinion surveys, electoral observation and rapid counts; and (i) organization, development, counting and declaration of results in citizen participation mechanisms (Mexico 1917: article 41.C).

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## 2. HEATWAVES AS NATURAL HAZARDS IN MEXICO

Heatwaves are defined as ‘a significant warming of the air or an invasion of very hot air over a large area [that] usually lasts from a few days to a week’ (National Meteorological Service n.d.). Due to climate change, heatwaves have increased in duration and frequency worldwide (UN 2019). In Mexico, this is particularly concerning during the hot season which spans from March to October. The country faces a wide variety of challenges due to its significant climatic diversity. According to the Ministry of Environment and Natural Resources, Mexico has seven major climate types. The most prominent climates are: warm subhumid, dry and semi-dry, very dry, and dry desert, with the biggest surface area; and warm humid, temperate subhumid, temperate humid, and cold, with the smallest surface area.

Since 2000, heatwaves in North America and Central America have become 0.8°C hotter (World Weather Attribution 2024a). Although 2024 was not the first year with episodes of extreme temperatures, it stood out for the record levels reached and the prolonged periods over which these occurred, both in Mexico (Peláez-Fernández and O’Boyle 2024) and globally. It was the first year in which the global temperature anomaly exceeded the critical threshold of 1.5°C above pre-industrial levels, a limit agreed upon in the Paris Agreement (Forbes 2025).

The national average maximum temperature in Mexico has increased consistently since 2015, reaching its highest point in 2024 at 30°C–1.3°C above the national average recorded in 2000 (Jiménez Espinosa, Cordero Devesa and Monroy Cruz 2024). This trend is creating a scenario of increased vulnerability for the Mexican population. Intense droughts and heatwaves have aggravated the situation by ‘preventing the dispersion of polluting particles, decreasing water availability, and reducing hydropower generation and electricity supply’ (World Weather Attribution 2024b). Due to the multiple threats that extreme heat represents, heatwaves are increasingly acknowledged as ‘silent killers’ (Puley 2022).

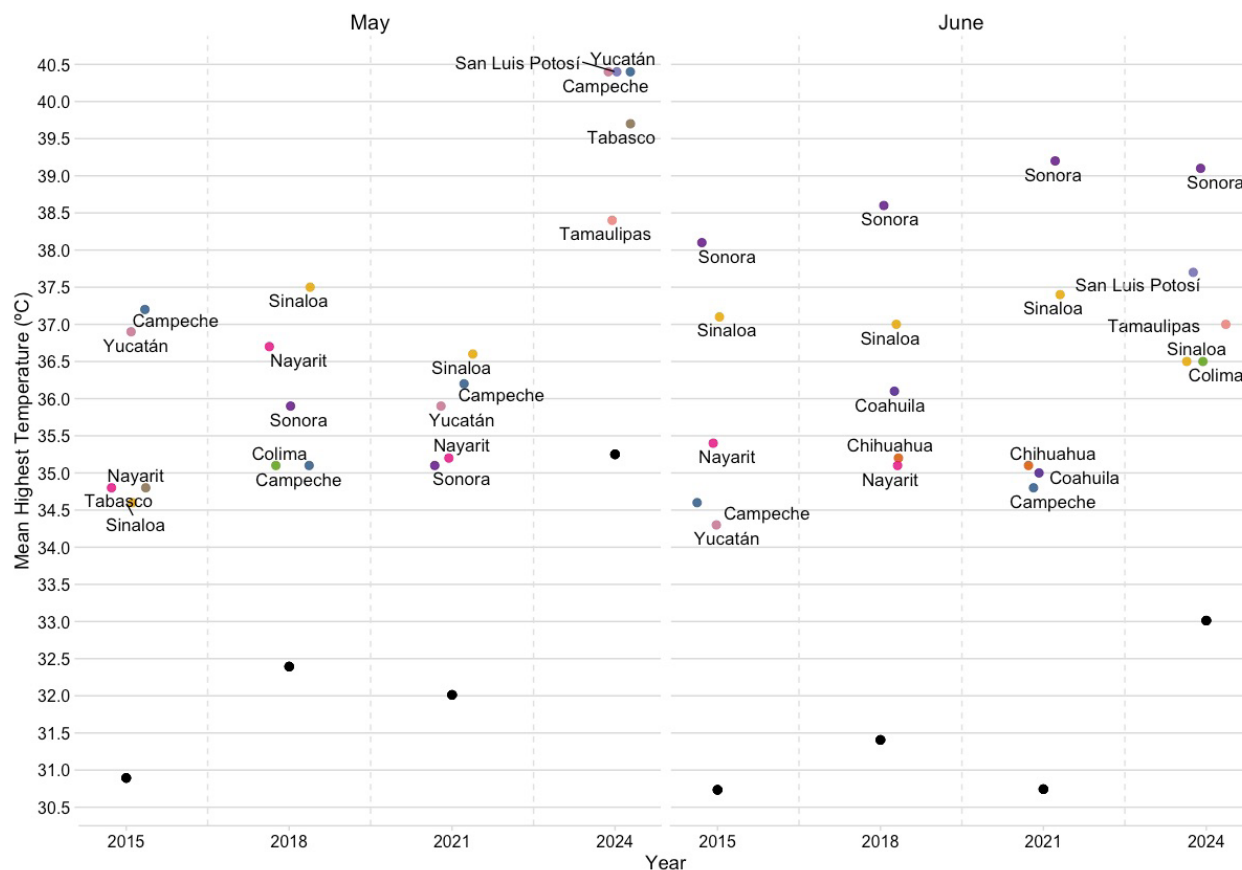
As shown in Figure 1, the national average of maximum temperatures in May experienced a significant increase between 2021 and 2024, rising from 32°C to over 35°C. This pattern was similarly observed in June, albeit not to the same extent, with the national average rising from 30.7°C to 33°C. Among the states most affected by this phenomenon are Nayarit and Sinaloa (in the West), Campeche and Yucatán (in the South East), which have consistently ranked among the hottest over the years. It is worth noting that as time progressed, the data points became more scattered up to 2024, indicating that the temperature variation among the states is growing, thereby complicating prevention and risk management efforts.

It can also be observed in Figure 1 that between 2015 and 2021, during the weeks preceding the national elections—held by law on the first Sunday of June—the average maximum temperature ranged between 34.5°C and 37.5°C. However, in 2024 these values increased considerably, reaching 40.5°C in

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**Heatwaves are increasingly acknowledged as ‘silent killers’.**

**Figure 1. States with highest average temperatures in May–June, compared with national average (in black), 2015–2024**



Source: Authors, data from the National Water Commission (CONAGUA), 'Temperatura máxima promedio de CONAGUA' [Mean highest temperature CONAGUA], [n.d.], <<https://www.datos.gob.mx/busca/dataset/temperatura-maxima-excel>>, accessed 11 April 2025.

states such as Campeche, San Luis Potosí and Yucatán. During the first half of 2024, states such as Campeche, Chihuahua, Coahuila, Guerrero, Michoacán, Morelos, Sinaloa, Veracruz and Yucatán experienced at least 50 days under extreme heat conditions. Moreover, between 20 May and 4 June, the longest heatwave of the year lasted 15 days (Arellano Guerrero et. al 2024), coinciding with the election day on 2 June.

**One of the most immediate and visible effects has been an increase in power outages in several regions.**

The impacts of systemic increases in extreme temperatures are diverse. One of the most immediate and visible effects has been an increase in power outages in several regions. In May 2024, the peaks in energy consumption caused by extreme heat forced the National Energy Control Centre (Centro Nacional de Control de Energía, CENACE) to move from a state of alert to one of emergency, as the available energy supply dropped below the levels necessary to meet demand (DW 2024; France 24 2024). This affected the electrical supply in more than half of the country (Alire García and Barrera

2024) and increased the risk of dehydration, heat stroke and other health complications associated with excessive heat.

Direct impacts on public health have been equally alarming. In early July 2024, 2,813 cases of heat-related health damage and 183 deaths related to high temperatures were recorded. Oaxaca Tabasco, Tamaulipas, Veracruz and Yucatán were among the most affected states. Nationally, deaths due to high temperatures increased by 20.39 per cent compared to the same period in 2023 (Rojas 2024). In 2023, deaths from heat stroke and dehydration had already increased nearly 13-fold since 2021 (from 33 to 421), reflecting how climate change is transforming climatic risks into much deadlier threats (Ministry of Health 2024).

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Additionally, the affected population has expanded, from adults over 70 to also significantly younger age groups. A recent study in Mexico revealed that individuals under 35 years old accounted for three-quarters of heat-related deaths between 1998 and 2019 (Rosenbluth 2024). This data is closely related to the growing number of young workers engaged in manual labour under extreme temperatures, increasing risks of heat stress, heat strokes and cardiovascular and/or kidney disease. These matters of occupational health and safety are of concern to the International Labour Organization, which has made proposals accordingly (ILO 2024).

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### 3. HEATWAVES AND THE 2024 ELECTIONS

Mexico's electoral system entails the concurrent renewal of multiple federal and local positions every three and six years. The 2023–2024 electoral process included the renewal of over 20,000 positions. These included the Presidency of the Republic, the Chamber of Deputies (500 seats), the Senate (128 seats), state governorships (9), local congresses (31 states) and thousands of municipal presidencies. The electoral process begins in September of the preceding year and involves a multitude of activities generally divided into three major stages: preparatory, electoral day and post-election. The INE selected and trained 1,532,358 citizens to serve as temporary election officials at polling stations in this cycle. Of this workforce, 20 per cent were over 60 years old, while 40 per cent were under 39 (INE 2024a). To train and supervise them, the INE hired further non-permanent staff: 7,000 electoral supervisors, and more than 42,000 assistant electoral trainers (INE 2024a).

Against this background, and the climate evidence discussed above, it is perhaps surprising that environmental risks have not featured more prominently on the agenda of the legislative bodies tasked with regulating elections in Mexico. According to the INE's former Executive Secretary, Edmundo Jacobo, 'there is not even a political debate considering any ecological aspect that would anticipate natural hazards' (Jacobo 2025).

In fact, the latest electoral reform approved in 2014, which synchronized local and federal electoral timelines, had a counterproductive effect. According to the current INE electoral councillor, Claudia Zavala, concurrent elections limit the ‘tropicalization’ of local electoral processes (Zavala 2025), which previously allowed local EMBs to adjust to the climate and special needs of Mexico’s different regions. Synchronizing federal and local elections was compounded by the decision to move election day from July to June to increase voter turnout, but without considering the protection of citizens and temporary and permanent staff during periods of intense heat (Jacobo 2025; Zavala 2025). This affected subnational jurisdictions with extreme temperatures in June, such as Baja California, whose election day had in the past been differentiated accordingly.

### 3.1. Risk management, crisis management and protective measures for voters

Turning to the EMBs themselves, hazards have been on the institutional agenda, leading to the development of specific response protocols. Since the 2014–2015 electoral process, both the General Council and the JGE of the INE have issued a series of agreements to implement actions that would allow for the handling of emergencies that could impede the electoral process (DEA/INE 2024). In 2020 a dual approach was approved to address hazards: the first strand involved the business continuity protocols developed by the various executive directorates of the INE; the second addressed emergencies that could be managed through management actions laid out in the Executive Directorate of Administration (Dirección Ejecutiva de Administración, DEA) protocols.

Next, in May 2022 the DEA made modifications to the agreements for the 2023–2024 electoral process (INE 2024c). In this regard, three important changes were introduced: (a) local and district executive boards were clearly designated as the responsible units for addressing potential contingencies or threats; (b) preventive actions to be implemented by the local and district boards were introduced; and (c) the INE established a registration system to document and monitor the activation of the corresponding protocols.

Table 1 shows the INE protocols that directly reference hazards. It is noteworthy that in none of these are heatwaves or high temperatures included. As such, actions taken have been at the discretion of electoral officials with decision-making power. For example, former INE Executive Secretary between 2014 and 2023, Edmundo Jacobo, stated that he had created a risk management model with a control panel that included climatic factors from the different regions of the country (Jacobo 2025). Another example was provided by the current INE electoral councillor, Martín Faz, who highlighted the consideration of climatic conditions in the design of equipment for field electoral trainers in 2024: ‘we decided to incorporate some type of garment that helps them face such adverse climatic conditions ... for example, a vest with removable sleeves, so that if they are assigned to a cooler location, they can put the sleeves on, or if it is hotter, they can remove them’ (Faz 2025).

As shown in Table 1, the protocols address a range of factors in business continuity from location of polling station booths to the integration of political party representatives, to storage of electoral materials and transmission of electoral results. There are also protocols outlining the actions to be taken in the event of natural hazards, yet none include heatwaves.

Actions considered in the protocols include changing locations for polling stations, for example, or establishing special polling stations outside the electoral section (district) when ‘geographical, infrastructural, or socio-cultural conditions make it difficult to access a specific section’ (DECEYEC/INE 2022). In the case of the Preliminary Electoral Results Programme (PREP)—through which citizens know the initial results of elections within the 24 hours of polling—the training plan for personnel involved in the continuity scheme requires familiarity with: (a) coordination and communication processes between groups; (b) their roles and responsibilities, as well as the vital records, and their purpose in the event of a contingency affecting PREP’s technological operation; and (c) the means of communicating contingency events (UTSI/INE 2024).

All interviewees for this study agreed on the importance of Mexico’s geographical diversity, which includes a variety of climates, soils, environments and ecosystems: ‘on election day we have as many climates as there are states in the Republic’ (Zavala 2025). They noted that a single model for addressing natural hazards across the country would therefore be inappropriate; rather, depending on local conditions, a ‘theoretical planning model ... with the flexibility to consider the particular issues of each locality or region must be developed’ (Jacobo 2025).

The protocols for addressing potential disasters primarily rely on adherence to the chain of command. In the event of communication breakdowns, those with experience and the best knowledge of the territory and its characteristics should make local decisions. These individuals are members of the national professional electoral service (SPEN) in each state and district. In this context, emphasis was placed on maintaining a well-trained professional electoral service to implement the continuity plan (Zavala 2025). Similarly, the former Executive Secretary made a clear statement: ‘If there is a disaster, the police will be elsewhere, firefighters and civil protection will be occupied, and polling station officials will rush to care for their families. Who will take care of the ballots? It must be us [the electoral authorities]—there is no one else’ (Jacobo 2025).

The Mexican model of bringing the polling station closer to the citizen is undoubtedly a significant advantage as it delimits the geographical area and sets a low cap on the number of voters per polling station, which helps avoid long queues and allows for more efficient management of contingencies (Jacobo 2025). It is important to note, however, that none of the protocols adopted by the electoral bodies prioritize the protection of voters on election day (Baños 2025; Faz 2025; Hernández 2025; Jacobo 2025; Zavala 2025).

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**Table 1. List of INE protocols applicable to federal and local electoral processes in 2024**

Document	INE unit	Objective	Risks	Actions	Level of application
DEA Protocols and Guidelines for Responding to Contingencies in the Federal Electoral Process 2023–2024	DEA	Mitigation and monitoring of administrative contingencies to ensure the continuity of operations during electoral processes	Medical emergencies due to accidents or death of personnel; losses, material damage, or other equipment-related issues	Facilitate the availability of necessary resources for contingencies	Central, local and district offices
Protocol for Continuity of Operations for the Integration of Polling Station Boards and Electoral Training	Executive Directorate of Electoral Training and Civic Education	Guarantee the integration of polling station boards and electoral training during the stages contemplated	Resignations of trainers; infrastructure and ICT system contingencies; hazards affecting the location of polling stations; health contingencies	Hiring personnel; seeking alternative properties; setting up extraordinary polling stations	District boards
Protocol for Continuity of Operations for the Installation of Polling Stations	Executive Directorate of Electoral Organization	Continuity of operations for the location and installation of polling stations	Disasters due to rain, floods, landslides, earthquakes and fires; lack of equipment; impediment to accessing properties	Support in personnel and materials, and financial resources	District boards
Protocol for Contingencies during the Storage of Electoral Documentation and Materials	DEOE	Ensure that electoral documentation and materials are stored under adequate conditions at the DEOE Distribution Logistics Centre	Damage to documents and electoral materials caused by a hazard or mishap	Financial and administrative support	District boards
Protocol for Contingencies in the Transmission, Reception, and Capture of Information on Electoral Day	DEOE	Ensure the reception and capture of information transmitted by personnel in the field via voice during the electoral day	Extreme climatic conditions; interruption of electrical power	ICT personnel	DEOE
Primary Computer Centre Continuity of Operations Plan	Executive Directorate of the Federal Registry of Voters	Actions to ensure the continuity of the operation of the Primary Computer Centre in situations that could affect information assets, the systems supporting operations and services provided by DERFE, as well as the safety of personnel and facilities	Emergencies caused by natural, social or external human factors; system or physical environment component failures	Financial and ICT personnel support	DERFE, DEA, Technical Unit of Information Technology Services (INE)
Continuity Plan for the Federal 2024 Preliminary Electoral Results Programme	Technical Unit of Information Technology Services	Actions to ensure the operation of the system that will support the 2024 Preliminary Electoral Results Programme on the federal electoral day, as well as to provide a rapid and appropriate response to contingencies	Natural and environmental hazards; infectious diseases; sabotage; terrorism; cyberattacks; power supply interruptions; unavailability of infrastructure; takeover of facilities; formation of response groups	Training for personnel involved in the Continuity Plan	UTSI

**Table 1. List of INE protocols applicable to federal and local electoral processes in 2024 (cont.)**

Document	INE unit	Objective	Risks	Actions	Level of application
Continuity Plan for the Registration Process for Requests, Substitutions, and Accreditation of Representatives of Political Parties and Independent Candidates	DEOE	Implement a continuity plan to determine the strategies, procedures and necessary actions to reestablish and effectively operate the Registration Process for Representatives of Political Parties and Independent Candidacies	Natural and environmental hazards	Provide tactical, logistical and operational decisions for adequate coordination and supervision of the Response Groups	DEOE
Civil Protection Protocols in case of ash, fire, earthquake, flood or heavy rains	DEA	Ensure updated protocols and guidelines to face disasters with a focus on continuity of operations	Ash; fire; earthquake; flood or heavy rains	Maintain permanent contact with security authorities, and make adjustments according to the situation	DEA, Subdirectorato of Civil Protection

Source: Authors, based on data from the Executive Directorate of Administration (Dirección Ejecutiva de Administración, DEA), National Electoral Institute (Instituto Nacional Electoral, INE), *Protocolos y Guías de actuación DEA para la atención de contingencias, eventos fortuitos o de fuerza mayor durante los procesos electorales* [DEA Protocols and Guidelines for dealing with contingencies, force majeure events during electoral processes], 2024, <<https://repositoriodocumental.ine.mx/xmlui/bitstream/handle/123456789/173659/INE-CCOE-022-2024-e2-5.pdf>>, accessed 10 April 2025.

Another theme in interviewees' responses was the importance of the INE's collaborating with other institutions: 'in the face of global warming, the effort of the electoral authorities should be accompanied by other authorities, such as municipalities, state governments, and other federal government presence' (Baños 2025).

For some types of risks, collaboration protocols do exist or have been improvised in response to hazards once underway. For example, in 2023, an orange alert due to the eruption of the Popocatepetl volcano led the INE to maintain contact with the Civil Protection authorities, as local elections could have been at risk (Faz 2025). A meeting on 25 May 2023 established that the only expected impact would be the emission of ashes, so it was safe to hold the elections as planned (INE 2023).

### *Criminal-political violence*

One of the risks that has received the most attention in recent electoral cycles is criminal-political violence. There is increasing consensus on the fact that organized crime has diversified and intensified its strategies to influence Mexican local politics over nearly two decades (Data Cívica 2024). According to Data Cívica, throughout elections held since 2006 there has been a growing number of direct attacks on elected authorities, public officials, candidates and political party members. While from 2006 to 2012 there were 311 such attacks (Trejo and Ley 2022), the period from 2018 to 2023 saw nearly 8,361 of these events—a 27-fold increase. Unfortunately, 'organized crime has imposed its political preferences, often through the use of violence, by placing candidates

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of its choice or removing those who are inconvenient to them' (Data Cívica 2024). For some interviewees, this is undoubtedly the greatest challenge for Mexican EMBs (Baños 2025; Hernández 2025; Zavala 2025). Criminal-political violence not only threatens candidates but also raises the possibility of organized crime co-opting the organization of the elections (Jacobo 2025).

The INE has set up security round tables to develop protocols and establish agreements with security authorities (Zavala 2025). This was the result of court rulings issued by the Electoral Tribunal of the Federal Judiciary (Tribunal Electoral del Poder Judicial de la Federación, TEPJF), which ordered the central EMB, within its competence, to adopt distinct measures and protocols necessary to create a national policy for preventing factors of electoral violence in both local and federal electoral processes (TEPJF 2021). Among the salient measures are to (a) generate risk maps, available to the public in the most appropriate manner; (b) create guidelines to investigate suspicious relationships with criminal groups, applicable to candidates; and (c) develop a protocol of guidance and action for authorities to safeguard the physical integrity of public servants and voters in areas where organized crime operates.

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Additionally, to bolster public confidence in the elections and encourage voting, the INE has since the 2021 mid-term elections sought to open channels of communication and trust with local officials to address the emergence of fake news, which—like disasters and other substantive risks—may jeopardize electoral participation. Considering that 'when someone is losing an election or believes they are going to lose, the first thing they do when the polling station opens is create a problem by saying "there were shootings at the polling station"' (Jacobo 2025), the INE launched the 'Certeza' programme, aimed at dismantling narratives that might discourage voter turnout. Regarding the issue of heatwaves, the INE debunked false statements that extreme temperatures would prevent people from voting and urged citizens to go to the polls (Milenio Estados 2024).

### 3.2. Did the 2024 heatwaves have significant effects?

Electoral campaigning ran from 1 March to 29 May, meaning that towards the end of the campaigns, the national territory was experiencing the highest temperatures of the year. The presidential candidates thanked those attending their events for participating despite the heat on just one occasion (Yucatan Times 2024). Perhaps surprisingly also, only two incidents related to the heatwave were reported in national media during the campaign. The first was on 5 March, when a woman in León, Guanajuato, required medical attention due to discomfort caused by high temperatures (Alatorre 2024). The second incident occurred four days later in Morelia when, due to the intense heat, attendees at a candidate's rally abandoned the event after its start was delayed by an hour (Ramírez 2024).

After the campaign period, election day on 2 June 2024 passed without major incidents. A total of 170,000 polling stations were approved for installation (INE 2024b), about 15,000 more than were planned for the 2018 elections. During

the day, 29 polling stations were permanently suspended, and after the day ended, it was reported that another 23 polling stations had not been installed (INE 2024b). None of the suspensions were due to weather conditions, relating instead to incidents of violence such as discharge of firearms, destruction of documentation, intimidation by party representatives, and the presence of armed groups (INE 2024a).

However, media reports indicated that voters did change their behaviour, arriving at the polling stations earlier to avoid exposure to the sun. For example, some voters in Xalapa, Veracruz, reported doing so and warned that if the queues did not move quickly, they would prefer to leave without voting (Sánchez 2024). In Yucatán, citizens were also reported to prefer voting earlier, which in some places increased the queues under the sun (Dávila Valdés 2024; Pereyra 2024: 92). In areas such as Jalisco, Morelos, Tabasco, Tamaulipas and Veracruz, the waiting time in temperatures over 40°C was up to one and a half hours in special polling stations,<sup>2</sup> compared to 15 minutes for voters at basic or adjacent polling stations (Sosa 2024). Despite the circumstances, only six cases of heat stroke were reported—one in Colima and five in Veracruz. Even though some local news reported that none of them had serious complications (Prado Rebolledo 2024: 41; Flores 2024), the importance of taking precautions against heatwaves must be emphasized, since one person died in Veracruz due to a stroke while waiting for his turn to vote (Milenio Estados 2024).

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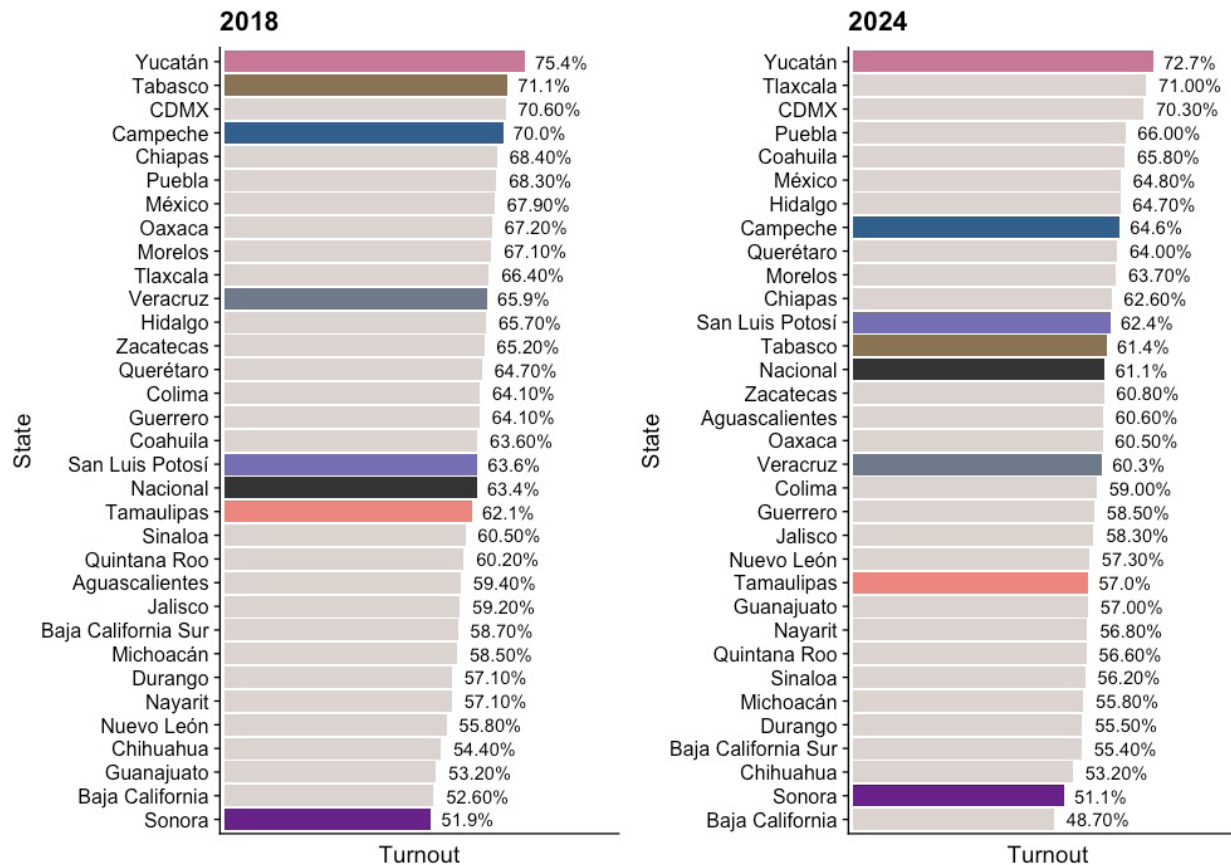
In terms of electoral participation, the average turnout in the 2024 general election was 61 per cent—a slight decrease from 63.4 per cent in 2018—which may not necessarily be attributable to the heatwaves. It is noteworthy that elections when both local and federal positions are being elected usually show higher participation rates compared to mid-term elections when only the federal Chamber of Deputies and some local positions are contested.

At the state level, turnout varied significantly. Figure 2 compares voter turnout in 2018 and 2024 by state. As can be seen, Yucatán leads in both elections with a turnout rate above 70 per cent, although it also recorded a slight decrease of 2.7 per cent between the two elections. Sonora and Baja California were at the other end of the distribution, with the lowest turnouts (and swapping their relative positions between the two election years).

When cross-referencing data on maximum temperatures, heat-related casualties and turnout, seven key states stand out where voter turnout decreased: Campeche, San Luis Potosí, Tabasco, Tamaulipas and Yucatán (the five most affected in May); Sonora (the most affected during June); and Veracruz, which had the most deaths in the first half of 2024 and incidents of heat stroke on election day (Flores 2024; Milenio Estados 2024; Rojas 2024).

<sup>2</sup> There are four different types of polling stations: (a) the basic, which correspond to a section (district) and receive the votes of between 100 and 750 voters; (b) the adjacent, which are installed when the section has more than 750 voters; (c) the extraordinary, which serve residents of a section that due to communication or socio-cultural conditions is difficult to access and; (d) the special, which are installed to receive votes from people in transit, that is, who are currently outside the electoral section in which they registered.

Figure 2. Voter turnout by state 2018 and 2024



Source: Authors' own elaboration with electoral results from the National Electoral Institute (Instituto Nacional Electoral, INE), 'Estadísticas y Resultados Electorales' [Electoral Results], [n.d.], <<https://ine.mx/computos-distritales/>>, accessed 20 February 2025.

### Tabasco experienced the largest drop in participation compared to 2018 (9.7 per cent).

Among the states most affected by heatwaves in the first half of 2024, Tabasco experienced the largest drop in participation compared to 2018 (9.7 per cent), followed by Veracruz (5.6 per cent lower) and Campeche (5.4 per cent). In terms of states' rankings relative to one another Tabasco fell the most, moving from 2nd to 13th place, while Veracruz dropped from 11th to 17th.

However, none of the states most affected in May are among the 10 with the lowest turnout in any of the electoral processes, which raises some doubt about the negative impact of heatwaves on electoral participation to date.

A specialized study of the relationship between maximum temperatures and their impact on turnout is beyond the scope of this case study.<sup>3</sup> However, it is important to acknowledge that interventions to mitigate natural hazard risks at the level of local EMBs does not always occur. The case of Veracruz, presented below, is emblematic of this issue as it combines high temperatures, significant political violence risks—the main concern for electoral bodies today—and a lack of risk and crisis management tools.

#### *Case study: Veracruz*

Veracruz is a state located on the coast of the Gulf of Mexico. It is one of the states where the systemic increase in temperatures has been most dramatic. Figure 3 illustrates the variation in temperature in the state over the last four electoral cycles. In May 2015, the average temperature barely reached 30.0°C, but it peaked at 36.4°C by 2024—although temperatures dropped slightly in June 2024, heatwaves were present during the electoral process as a whole.

Commenting on this challenge in an interview with Mabel Hernández, the current councillor of the state-level EMB (OPLE Veracruz), stated that ‘they have had to deal with high temperatures during the electoral processes with the ordinary resources they have, without the existence of a specific action protocol for high temperatures’. She added: ‘I remember that in last year’s 2024 election, at one point, the issue was raised, “How are we going to ensure that the queues do not cause, for example, a heat stroke in an elderly person?” and it was implied that since it is an issue at the polling station ... it is mainly the INE’s responsibility to foresee what can be done’ (Hernández 2025).

The councillor acknowledged that ‘the only document that considers the impact of temperatures in Veracruz pertains to the Preliminary Electoral Results Programme (PREP), since the computing equipment can be affected by high temperatures’. Another air-conditioned location is the Capture and Verification Centre of the Scrutiny and Counting Records, which is crucial for the validity of the results.

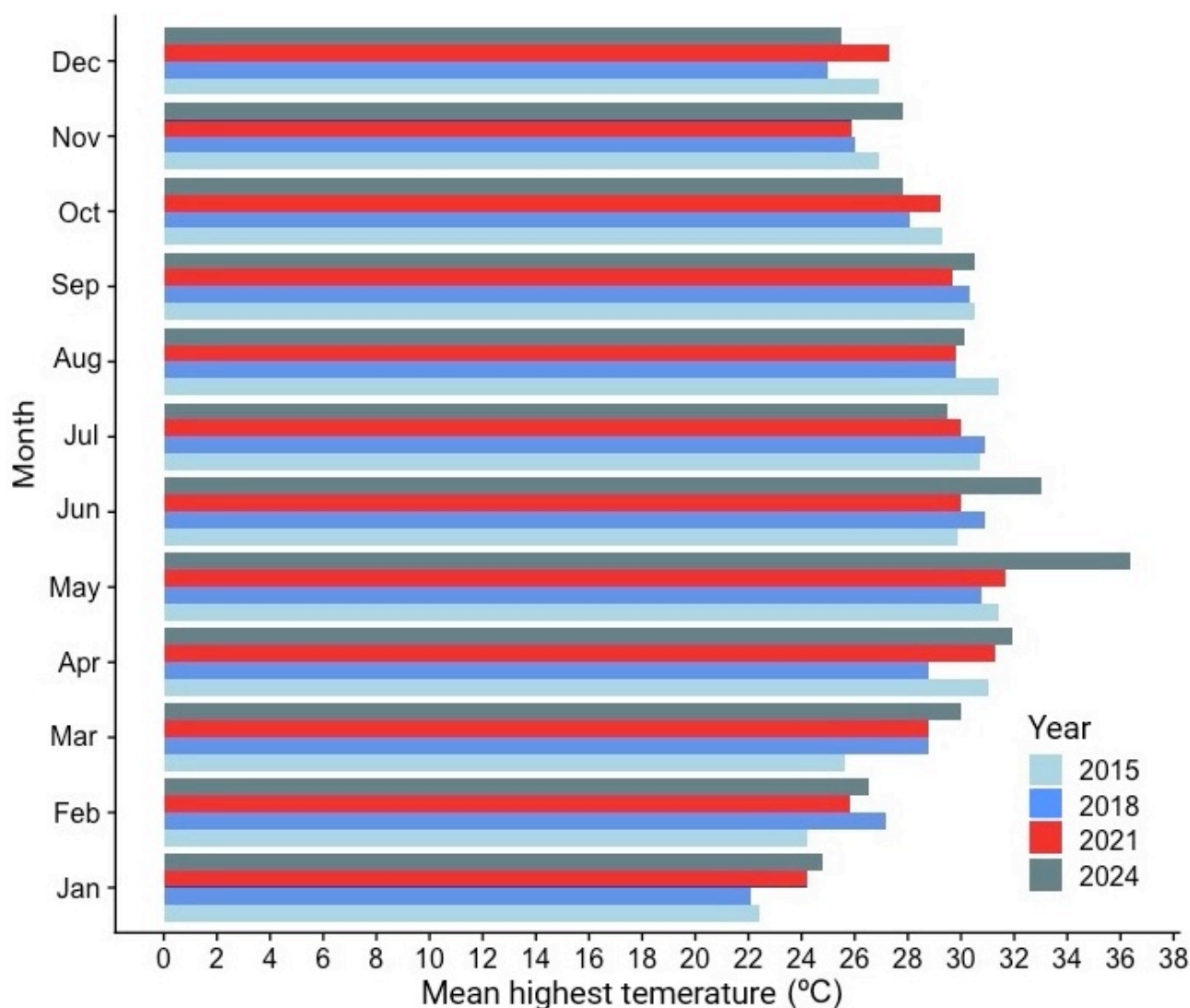
**It is important to acknowledge that interventions to mitigate natural hazard risks at the level of local EMBs does not always occur.**

## **4. CONCLUSIONS AND LESSONS LEARNED**

The national electoral authority in Mexico, the INE, has a strategic planning framework that includes very robust risk management schemes, with specific protocols for addressing the following natural hazards: heavy rain, flooding, landslides, earthquakes, ashfalls and fires. These protocols specify the activities of local EMBs that must address unforeseen events, including the chain of command that must be followed to ensure efficient crisis

<sup>3</sup> Studies on electoral participation in Mexico have highlighted the importance of factors such as party identification, political efficacy, trust in institutions and, to a lesser extent, educational attainment. These elements align with those identified in the specialized literature (Blais 2000; Somuano and Nieto 2020; Geys 2006; Stockemer 2017; Frank and Martínez i Coma 2021; Matsusaka and Palda 1999). An analysis that also includes natural phenomena, such as heatwaves, should take into account not only the aforementioned political, social and institutional factors but also temperature spikes—particularly during electoral campaigns, when the population may be more exposed to the effects of extreme heat.

Figure 3. Temperature variation in Veracruz (2024 and previous)



Source: Authors, temperature data from the National Water Commission (CONAGUA), 'Temperatura máxima promedio de CONAGUA' [Mean highest temperature CONAGUA], [n.d.], <<https://www.datos.gob.mx/busca/dataset/temperatura-maxima-excel>>, accessed 11 April 2025.

management. However, heatwaves have not thus far been seen as posing comparable risks to the electoral process, the continuity of planned actions or the credibility of elections.

The objective of risk and crisis management protocols and guidelines is the continuity of the electoral process, that is, to prevent the interruption of activities and ensure the exercise of the right to vote and be voted for. Institutional resilience measures against disasters are focused on training professional electoral service members who are responsible for directly addressing hazards at the local level. Given the growing impact of heat as a natural hazard, it is essential that this issue be institutionalized in the electoral management.

Some prescriptive lessons learned that may be useful for Mexico's electoral stakeholders—as well as those in other countries—include the following:

- Special measures should be planned to mitigate the impact of heat on both voters and election officials (whether part of the permanent or temporary workforce) and to ensure the smooth conduct of the electoral process.
- Strengthening the INE's local structure in each state is essential to effectively address the anticipated risks.
- Local EMBs (the so-called OPLE) should be encouraged to develop their own risk and crisis management frameworks, grounded in a thorough understanding of each state's climatic conditions.
- Providing EMBs with the necessary resources to implement protocols and special measures to address the impact of heatwaves is crucial.
- Standardizing national responses to natural risks such as heatwaves remains an important and pending task.
- Stronger and more effective inter-institutional cooperation agreements are needed.

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## ANNEX A. INTERVIEW GUIDE

### Project context

International IDEA is interested in understanding the extent to which national and local electoral bodies are prepared to face the challenges posed by climate change. In the case of Mexico, International IDEA is particularly concerned about the extreme temperatures recorded in May and June (heatwaves), which may have affected both electoral campaigns and election day.

### Introduction: General context

- To begin, what is your overall assessment of the performance of INE/OPLE Veracruz in the 2024 federal and local elections?

### Climate crisis

Let's discuss the climate crisis in Mexico, particularly the extreme temperatures and heatwaves, which are defined as a 'significant warming of the air or an invasion of very hot air over a large area that usually lasts from a few days to a week' (SMN n.d.).

According to data from CONAGUA, Mexico's average highest temperature has systematically increased since 2015, reaching its highest point in 2024 at 30°C.

Among the states most affected by this phenomenon are Nayarit, Sinaloa and Yucatán, which have consistently ranked among the hottest in recent years. In 2024, Sinaloa's average highest temperature reached 34.4°C.

This rise in extreme temperatures has had a severe impact on public health. By early July 2024, 2,813 cases of heat-related illnesses and 183 deaths had already been recorded due to high temperatures.

The states of Oaxaca, Tamaulipas, Tabasco, Veracruz and Yucatán were the most affected, with a 20.39 per cent increase in heat-related deaths nationwide compared to the same period in 2023.

- Was the INE/OPLE Veracruz aware of the potential risks associated with this climate phenomenon?
- Were heatwaves a topic on the council's agenda?
- How did the institution become aware of the severity of the situation?
- Did you receive official information, such as prior meetings with Civil Protection or health authorities, or was it mostly through the media?
- How far in advance were electoral authorities informed about the heatwave and its possible effects on the elections?
- Were there any meetings or coordination efforts among different organizations to address these climate risks?

### **Voter protection measures**

- What measures did the INE/OPLE take to ensure the safety and well-being of citizens participating in the elections?
- Was there any specific protocol related to extreme weather conditions affecting the voting process?
- Did the INE and OPLE establish any form of emergency communication with local authorities to address this climate crisis?
- What actions were taken to protect people at polling stations? For example, for hydration or ventilation, or adapting the facilities where voting took place.
- Were election schedules adjusted, or were additional voting locations set up with suitable conditions, particularly in the most affected areas?
- Were supplies such as water, fans or basic medical support provided at strategic points?

### **Emergency response and follow-Up**

- During the heatwave, there were reports of deaths and extreme conditions. Was there any immediate response protocol in place for heat-related emergencies such as heat strokes or dehydration?
- Did the local electoral body have a contingency plan with other institutions (health, civil protection) to respond to critical situations during the elections?
- How did coordination with other entities ensure that affected individuals could vote safely?

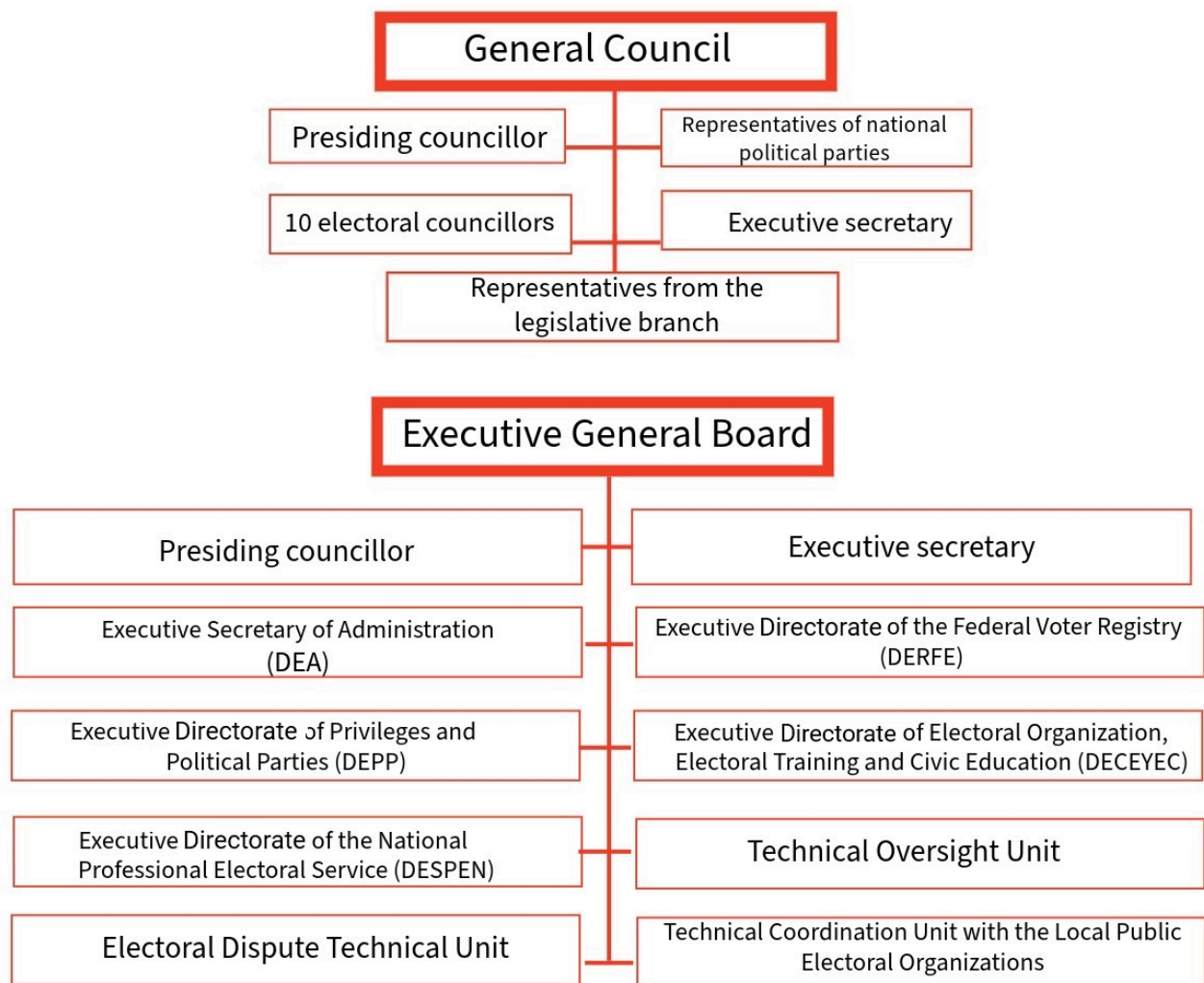
### **Evaluation and lessons learned**

- Do you think there were aspects that could have been improved or better anticipated?
- Is there a plan to enhance or adjust protocols for future elections in the context of climate crises?
- To what extent is climate change considered a factor to be incorporated into long-term electoral planning?

Thank the interviewee for their time and invite them to share any additional messages on climate crisis awareness and guarantees on the right to vote.

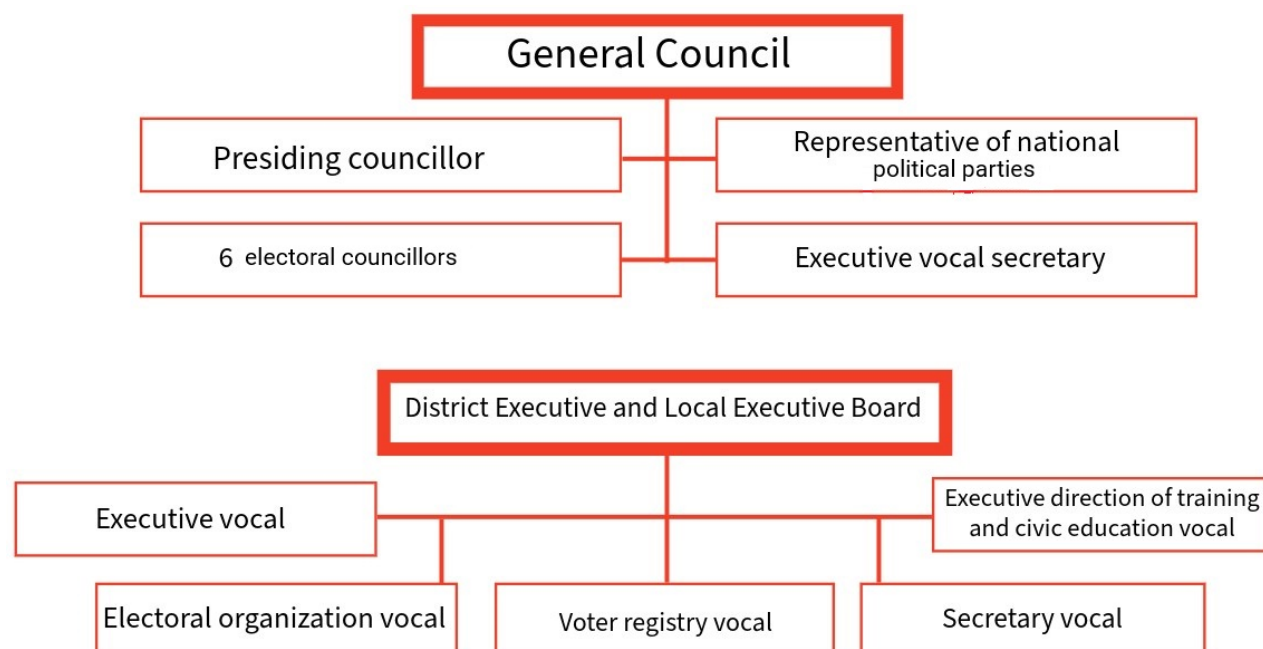
## ANNEX B. ORGANIC STRUCTURE AND FUNCTIONAL DIVISION OF THE INE

Figure A.1. Centralized bodies of the INE



Source: Authors, data from the General Law of Institutions and Electoral Procedures (LGIPE) <[https://www.icnl.org/research/library/mexico\\_proced/](https://www.icnl.org/research/library/mexico_proced/)>, accessed 20 May 2025.

Figure A.2. Decentralized bodies of the INE



Source: Authors, data from the General Law of Institutions and Electoral Procedures (LGPE) <[https://www.icnl.org/research/library/mexico\\_proced/](https://www.icnl.org/research/library/mexico_proced/)>, accessed 20 May 2025.

## ABBREVIATIONS

<b>DEA</b>	Executive Directorate of Administration [Dirección Ejecutiva de Administración]
<b>DECEYEC</b>	Executive Directorate of Electoral Training and Civic Education [Dirección Ejecutiva de Capacitación Electoral y Educación Cívica]
<b>DEOE</b>	Executive Directorate of Electoral Organization [Dirección Ejecutiva de Organización Electoral]
<b>DERFE</b>	Executive Directorate of the Federal Registry of Voters [Dirección Ejecutiva del Registro Federal de Electores]
<b>EMB</b>	Electoral management body
<b>INE</b>	National Electoral Institute [Instituto Nacional Electoral]
<b>JGE</b>	Executive General Board [Junta General Ejecutiva]
<b>OPLE</b>	Local Public Electoral Organizations [Organismos Públicos Local Electorales]
<b>PREP</b>	Preliminary Electoral Results Programme
<b>UTSI</b>	Technical Unit of Information Technology Services, INE [Unidad Técnica de Servicios de Informática, INE]

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