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Critical Infrastructures
New Forms of Applied Historiography and its Relationship with 2030 Global Agenda Analysis of Particular cases: Japan

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Abstract: The growth in the importance of Critical Infrastructures observed throughout the last decades of the 20th century and the beginning of the 21st century had a direct impact on the construction of stability and governance of the global system of human development. In this context, an axis of information constituted by the sustainability-resilience-criticality set was identified, which remains explicit in the documents and action plans of different states and International Organizations whose study contributes important data to the Historiography of the Present Time, since from its analysis, possible hypotheses emerge ,that complement from historiographical praxis, the arduous qualitative and quantitative work done over the years by experts in the documentary and archival field. For this, the present work proposes as a general objective to describe the main characteristics of the concept of Critical Infrastructures in the last decades of the 20th century and the beginning of the 21st century and its relationship with the stability of the global development system, responding to a non-experimental design of panel type applied longitudinally or evolutionary, preferring the use of a mixed approach that integrates quantitative and qualitative variables, in order to make an approach to the object of study from a systemic perspective. Regarding the techniques used, documentary research was used through the application of bibliographic systematization, content analysis of the qualitative approach and quantified textual analysis, structuring the results of this work in five sections.
Keywords: Threats, critical infrastructures, security policies, prevention, risks.

Introduction

There are various hypotheses and qualitative investigations regarding the nature of Critical Infrastructures. Some theoretical perspectives suggest that their nature is limited only to information technologies and their derived subsystems, these being nothing more than elements of the system intended to passively endorse the provisions on security and protection, being devoid of any possible leadership.

Other perspectives in a divergent line of thought maintain, for their part, that Critical Infrastructures respond to a much broader spectrum of issues than that which exhausts its resources in establishing protection policies solely based on information technologies, subordinating the rest. of the subsystems. However, the expansion of the spectrum of Critical Infrastructures transforms these various types into active factors within the global system, becoming not only the protection but also the access to Critical Infrastructures in the meantime of an adaptive success that allows the consolidation of the stability of the system, globally.

The Council of the European Union defines Critical Infrastructure as the element, system or part of it located in the Member States that is essential for the maintenance of vital social functions, health, physical integrity, security and social well-being and of the population and whose disturbance or destruction would seriously affect a Member State by not being able to maintain these functions.

The US Center for Critical Infrastructure maintains that critical infrastructure describes physical and cyber systems and assets that are so vital to the United States that their incapacitation or destruction would have a debilitating impact on their physical or economic security or health. or public safety. The Nation's critical infrastructure provides the essential services that sustain American society.

In this context and given the lack of mixed-type studies related to the concept of Critical Infrastructures, it is of special interest to carry out a data analysis oriented to the study of the different perspectives that address the subject, in order to establish a relationship between the criticality - resilience - sustainability axes, which allows complementing, from an eminently quantitative and qualitative perspective, the deterministic type of research that has been carried out from different perspectives throughout the transition to the 21st century. The use of the mixed and comparative method as an essential tool for the rewriting of deterministic data will make it possible to identify, through the study of the quantifiable variables of the Critical Infrastructure systems, precise data that allows verifying the different existing hypotheses on the topic of global socioeconomic and political stability, thus making it possible to establish systemic relationships between the data provided by the available material records, thus comparing qualitative approaches to quantifiable data and extracting from such a process

an objective approach to the topic in question. . This in order to complement the information obtained through various research methods.

For this reason, this research aims to describe the main characteristics of the concept of Critical Infrastructures throughout the last decades of the 20th century and the beginning of the 21st century, its relationship with the stability and governance of the global system of human development and its application. to specific cases of emblematic projects for the resilience and sustainability of their infrastructures.

To carry out this analysis, a non-experimental panel-type design was used that was applied longitudinally or evolutionarily to the subgroup of Japanese critical infrastructures developed over the last twenty years and that are part of the object of study. It should be taken into account, based on what was previously mentioned, that according to Hernández, Fernández and Baptista (2006):

> In a non-experimental study, no situation is built, but already existing situations are observed, not intentionally provoked in the research by the person who performs it. In non-experimental research, independent variables occur and it is not possible to manipulate them, there is no direct control over these variables, nor can they be influenced, because they have already happened, just like their effects. (p.205)

On the other hand, the use of a mixed approach has been preferred, integrating quantitative and qualitative variables, in order to approach the object of study from a systemic perspective.

According to Hernández, Fernández and Baptista (2006):

> The mixed approach is a process that collects, analyzes and links quantitative and qualitative data in the same study or a series of investigations to respond to a problem statement (...). Methods from the qualitative and quantitative approaches are used and may involve the conversion of quantitative data into qualitative data and vice versa (...). Also, the mixed approach can use the two approaches to answer different research questions of a problem statement. (p.755)

Regarding the techniques used, documentary research was used through the application of bibliographic systematization, the content analysis of the qualitative approach and the quantified textual analysis belonging to the field of the quantitative approach, applied to the documents belonging to The Second National Strategy on Information Security, Second Action Plan on Information Security Measures for Critical Information Infrastructure and The Basic Policy of Critical Information Infrastructure Protection, with the aim of evaluating conceptual determinations and development frameworks over time.

Finally, in order to contribute to a methodical and systematized development of the research, it has been structured into five sections. In the first section “Historiography as actio. The broadening of the spectrum of praxis in the Historiography of the Present Time”, the possibility of expanding the field of action of the historiographical method is evaluated by linking certain theoretical approaches to the field of praxis, suggesting ways to convert the Historiography of the Present Time into Historiography applied. In the second section "On the concept of Critical Infrastructures and its link with historiographical praxis", a compatibility analysis is carried out between historiographical praxis and its purposeful function in essential fields for the development of the civilizational factor such as the related to Critical Infrastructures. In the third section "Sustainability, criticality and resilience in Critical Infrastructures", an analysis of the characteristics that define the concept of Critical Infrastructures is carried out in order to delimit its field of action and establish the relevant historiographical relationships. The fourth section "Main issues on the global agenda and their impact on CIs" addresses the impact of the main issues on the global agenda on Critical Infrastructures and their link with the 2030 objectives established by the United Nations Organization. Finally, in the fifth section “Specific cases of CI. Japanese resilience and its energy policy" addresses the Critical Infrastructure systems of countries such as Japan, as well as describing the main advances of said country in terms of resilience and promotion of sustainability projects within the framework of the CI.

In this way, we try to verify that the growth in the importance of Critical Infrastructures observed throughout the last decades of the 20th century and the beginning of the 21st century had a direct impact on the construction of stability and governance of the global system of human development.

1. Historiography as actio. The broadening of the spectrum of praxis in the Historiography of the Present Time

One of the most important functions of historiography is undoubtedly the preservation of civilization, a concept that refers to a "whole" product of the combination of material (mechanics and technology) and rational (values, art, etc.) elements whose existence allows sustaining levels of development and progress qualitatively and quantitatively higher than those experienced in previous stages of human development. In other words, civilization refers to those elements that support the existence of the human being at such levels that the usual

problems, to which all anthropological systems altered by general entropy are subjected, these are resolved affectively from the combination of cultural and technological elements within the framework of the innovations and creative feats typical of the last decades of the 20th century and the beginning of the 21st century.

Many are the sciences that try to contribute from their respective fields of knowledge to the continuity and prevalence of the elements that constitute the civilizational factor. However, the interpellations to which History is subjected in relation to its role in such a scheme, can only be shown more effectively and with less margin of error from the point of view of Historiography, but not from a general Historiography of court postmaterialism, rather from a particular, dynamic and purposeful Historiography, that is, Historiography of the Present Time, capable of accessing a methodological configuration possessing the necessary aptitudes to broaden its spectrum of action to other spaces of knowledge that are not necessarily academic, allowing the human being as a subject of its History acquires awareness of the various forms of existing preservation.

That is to say, not only the documentary preservation of all the cultural and technological elements that have led the human being to the current level of development is important as a means of preservation, but also from the point of view of Applied Sciences where praxis acquires special relevance. , the Historiography of the Present Time has become Applied Historiography by putting preservation as an action on its agenda, opting in this context for an active management of the necessary elements to achieve a correct functioning of the structures on which civilization depends. In this sense (since the spectrum of proactive action is so broad), part of the Historiography of the Present Time emphasizes those essential elements for the development of the civilizational scheme whose alteration could harm the normal functioning of the positive feedback system in which develop such a factor. For this reason, of all the elements of the system that make up the civilization scheme of the 21st century, the Critical Infrastructures, that is, those essential elements for the functioning of the technological and cultural assistance systems, on which the development of the human being depends, are part of the elements that deserve special attention from Historiography as an action, due to their ability to alter and impact the current type of civilizational development.

2. On the concept of Critical Infrastructures and its link with historiographical praxis

In general terms, infrastructure is understood as:

> Set of services, technical means and facilities that allow the development of an activity. The word infrastructure comes from the Latin infra (under) and structus (built), and for this reason this term is used to refer to a structure that supports another, acting as its base. In its most frequent use, infrastructure comprises the set of public works, facilities, institutions, systems and networks that support the functioning of cities, countries and other forms of social organization.
> (Etecé Editorial, 2020)

On the other hand, different international organizations and geopolitical blocks have also shaped the concept of Critical Infrastructures, thus making it possible to delimit its field of action and develop the necessary mechanisms to ensure its proper functioning and protection against possible threats. In this context, article 2.a of Directive 2008/114/EC of the Council of the European Union, on the identification and designation of European Critical Infrastructures and the evaluation of the need to improve their protection, defines Critical Infrastructures as:

> The element, system or part of it located in the Member States that is essential for the maintenance of vital social functions, health, physical integrity, security and the social and economic well-being of the population and whose disturbance or destruction would seriously affect a Member State not being able to maintain those functions.
> (Council of the European Union, 2008)

In turn, the Critical Infrastructure Center created by the Australian government in 2017 defines critical infrastructure as:

> Physical facilities, supply chains, information and communication technologies and their networks that, if destroyed, degraded or unavailable for an extended period, will have a significant impact on the social life or economic well-being of the nation or would affect the country's ability to carry out national defense and ensure national security.
> (ICC, 2017)

Likewise, the Cybersecurity and Infrastructure Security Agency, which carries out advisory tasks within the Department of Homeland Security of the United States of America, maintains that:

> Critical infrastructure describes physical and cyber systems and assets that are so vital to the United States that their incapacitation or destruction has a debilitating impact on our physical or economic security or public health or safety. The Nation's critical infrastructure provides the essential services that sustain American society.
> (CISA, 2022)

Other examples of conceptualization around the issue of Critical Infrastructures can be found in resolution 1523/2019, appendix 1, of the Government Secretariat for Modernization of the Argentine Republic, which defines Critical Infrastructures as:

> Those that are essential for the proper functioning of the essential services of society, health, security, defense, social welfare, economy and the effective functioning of the State, whose total or partial destruction or disturbance affects them and / or impact significantly.
> (Government Secretariat for Modernization, 2019)

Regardless of the International Organization or State that carries out a definition of its Critical Infrastructures, the process of conceptualizing them will always emphasize their essential nature, that is, their substantial nature, which implies the impossibility of access alternative solutions to a possible structural problem, since in the event of anomalies, their indispensable nature would necessarily lead to the disturbance of the systems that are associated with such infrastructures, thus turning the environment into a negative feedback system capable of exposing not only problems of a material nature but also problems of a cultural nature destined to mutate into phenomena of disintegration of the social fabric and with it the characteristic civilizational element of 21st century societies.

In this sense, the total dependence of the development of the human being on different types of infrastructures, gives new meaning to the subject in question, allowing it to acquire superlative importance with respect to other topics on the world agenda, since unlike previous centuries the technology embedded in each system Critical, by becoming the fundamental axis of development, supposes the interconnection and dependence of all the subsystems involved that cannot be left at the mercy of possible anomalies. In this framework, the collapse of an infrastructure due to natural causes or human disturbances is not an issue that has been taken lightly by the large decision-making centers in recent decades, since through different surveys an attempt has been made to focus the greatest amount of effort to avoid the materialization of the innumerable negative effects that such interruptions or disturbances could have on the global system.

Concern about the effect of such disturbances lies in their ability to modify the boundaries of stability and development that characterize different areas and aspects of the world system, affecting not only the quality of life of human beings by endangering their health and physical integrity, but also in the economic field when there are potential disturbances in the financial and productive system; in the environment by endangering or damaging the ecosystem and the elements that comprise it; in the correct exercise of human rights and freedoms enshrined in each international agreement and in the executive, legislative and judicial tasks of a Rule of Law.

On the other hand, the transition to the first decades of the 21st century has not found the scientific spectrum that addresses the issue of Critical Infrastructures unprepared and unaware of the weaknesses and strengths built over the last eighty years. In this sense, the efforts aimed at shaping a new paradigm of Critical Infrastructures are nourished by characteristics and adjectives built on the basis of objectives compatible with the needs of the 21st century, which urge the construction of the essential elements of the global system based on the safety, sustainability and resilience axis.

3. Sustainability, criticality and resilience in Critical Infrastructures

One of the most important characteristics that defines the concept of Critical Infrastructures is "criticality", a characteristic that necessarily entails the question regarding what is critical and why an infrastructure should be classified as such.

Regarding the types of infrastructure that can be considered critical, according to the Infrastructure and Cyber security Agency (2020), there are sixteen sectors whose assets, systems and networks, whether physical or virtual, are considered of vital importance, such an extent that its incapacitation or destruction would have a devastating effect on security, economy, health, or any combination of these factors. Within the spectrum of criticality proposed by this agency, the chemical sector, commercial facilities, the communications sector, the critical manufacturing sector, the dam sector, the defense industrial-based sector, the emergency services sector, stand out. the energy sector, the financial services sector, the agri-food sector, the government facilities sector, the health and public health sector, the ICT sector, the nuclear reactors, materials and waste sector, the transport systems sector, the water and sanitation systems sector and the satellite technology sector.

On the other hand, criticality as a fundamental characteristic of this type of infrastructure carries within it the inexorable capacity for anticipation necessary to avoid the collapse of the subsystems that depend on such infrastructures. Although the forecasts may be affected by margins of error outside the accepted tolerance levels, it is still a fundamental factor that allows the extension of such care to all sectors linked by a Critical Infrastructure. In this way, predictability has allowed action against some shortcomings of the global system, cite poverty as an example, which has been controlled from the creation of work directly or indirectly linked to the maintenance and creation of the essential elements of the system. Another important example is the "energy transition" European Union, where all the actors that are part of the system are urged to make big decisions in the short, medium and long term based on forecasts that allow them to give answers to issues such as the characterization of the value of infrastructures for society, the sustainability of Infrastructures, the creation of Intelligent Infrastructures, issues related to Big Data and Artificial Intelligence, the development of Infrastructures in the face of climate change, risks, threats and resilience of development systems, Investments and finances for Infrastructures, the planning of Adaptive Infrastructures, etc. Such a wide spectrum of issues to be resolved shows that the essentiality that characterizes critical infrastructures justifies their criticality, placing their importance above any distorting element of the system, basing such importance on the need for their proper functioning, which removes from the level of political and socio-cultural discussions to the issue in question, turning it into a policy that transcends the traditional boundaries of power.

In this sense, the protection of Critical Infrastructure based on public-private cooperation models is vital to keep essential services running. For this reason, the identification of Critical Infrastructures whose importance is superlative in terms and systemic magnitudes, could help foster new models and channels of cooperation, as shocks become more frequent in the deeply interconnected world, a growing number of Governments and organizations turn to resilience-based risk governance strategies to deal with such shocks. In this framework, a conceptualization of risk must necessarily be linked to significant failures in the functioning of the elements that make up the Critical Infrastructure system, whose cascading effect can determine in the short term the transformation of the functioning of a society and even contribute to its collapse.

As Critical Infrastructures become essential elements of the system, concepts such as governance in a risk context become the foundations of criticality by giving it entity and accepting its implications and risks. The International Risk Governance Council defines these governance mechanisms aimed at neutralizing risks as:

> The actions, processes, traditions, and institutions through which authority is exercised and decisions are made and implemented. Risk governance applies the principles of good governance to the identification, assessment, management and communication of risks.
> (IRGC, 2019)

An adequate risk management oriented to the protection of critical infrastructures has the advantage of reducing interdependence that allows transferring the critical negative aspects of a system to a subsystem as well as promotes the management of the demand of such infrastructures and the adjustment of priorities, minimizing system restoration times after a failure and allowing critical social subsystem elements to be maintained in the face of a failure in the overall system.

Two other main characteristics that define Critical Infrastructures are the concepts of resilience and sustainability, the first being understood in a broad sense as:

> The ability to resist, adapt to changing conditions, and positively recover from shocks and stresses. Therefore, resilient infrastructure will be able to continue to deliver essential services, due to its ability to positively resist, adapt and recover from any shocks and stresses it may face now and in the future. This applies to physical infrastructure assets and the broader system of which these assets are a part, including the natural environment, the organizations that own and operate these systems, and the humans who make decisions through value chains for these. systems.
> (Resilience Shift, 2022)

On the other hand, the concept of sustainability applied to the essential characteristics of Critical Infrastructure systems refers to:

> The equipment and systems that are designed to satisfy the needs of essential services of the population, including roads, bridges, telephone towers, hydroelectric plants, etc., based on integral sustainable principles. This means that the infrastructure is environmentally friendly from start to finish, and that includes economic, financial, social and institutional factors.
> (Iberdrola Group, 2022)

These definitions have been reflected in various documents and statements that integrate the intergenerational perspective, the stakeholder approach and life cycle thinking into their methodological

configuration. In this sense, on September 25, 2015, a total of 193 countries committed themselves in the 70th General Assembly of the United Nations, to set their sights on 17 key and essential lines of work for the sustainability of the planet; the so-called 17 Sustainable Development Goals, with the aim of achieving by 2023 a radical transformation of all the systems involved in human development.

4. Main issues on the global agenda and their impact on Critical infrastructures

Of the innumerable issues that concern the global system, four in particular have special relevance to the issue of Critical Infrastructures: production and trade; finance and monetary systems; global security and digitization and technology.

Regarding production and trade as highly relevant issues for the global agenda, a large part of the international actors have joined forces in order to achieve the objective of strengthening the world trade system, since from their geopolitical perspectives such strengthening has the capacity to generate greater inclusiveness and strengthen those developing countries that for different reasons have seen their growth, both quantitative and qualitative, diminished or paralyzed, reflecting this in their critical infrastructure systems. The international trade system through its rules, which allow complex actions to be considered in a context of predictability, has become an unquestionable engine of growth, capable of increasing the economic possibilities of different international actors and with it the innovations and improvements of all existing structures that are nourished by such tools to grow superlatively.

According to the World Bank Group, the proposed trade liberalization as part of the agenda to strengthen the international trade system:

> It has promoted economic growth by an average of 1-1.5 percentage points, resulting in a 10-20% increase in revenue after a decade. In absolute terms, the international trading system has boosted incomes by 24% globally since 1990, and by 50% for the bottom 40% of the population. Consequently, since 1990, as part of a constant process of opening up and economic consolidation, more than 1 billion people have left poverty due to the economic growth generated by the practice of commercial strategies integrated into the global system.
> (WBG, 2019)

Consolidated over time, some sociopolitical factors hinder the optimal functioning not only of the system of Critical Infrastructures related to trade within the global scheme, but also hinder the insertion of developing countries in said system, thus generating a quantitative backwardness in the subsystems that are part of such actors. In this sense, the existence of companies with low competitiveness, unfavorable regulatory systems for economic growth and especially the lack of plans for the creation and efficient management of Critical Infrastructures, are not only configured as the main disturbances that affect the infrastructure system but also They highlight the constant tensions to which the world scheme has been subjected over the last decades, preventing the development of local or regional predictability mechanisms for the correct functioning of the markets and their associated infrastructures.

On the other hand, the importance of financial and monetary structures is configured as another of the great issues that make up the international agenda and that directly affect the field of Critical Infrastructures, since the financial system not only has the capacity and improves the indices of productivity of different actors, but also the efficiency and solidity of the financial and monetary systems allows directing resources efficiently to those sectors or projects of high productivity and impact, for which reason it has become a factor of great importance within the international agenda to ensure that the flow of much-needed resources to allow the growth of different types of infrastructure projects in a constant and secure framework. In other words, solid financial and monetary systems support and shape economic growth and development of all fields affected by Critical Infrastructures, positively modifying the development of the actors involved.

Another of the necessary conditions for the prevalence of critical infrastructures is global security. Being that the level of effectiveness of an infrastructure can be measured not only in terms of system generation but also in terms of access, it is necessary to highlight that fragility, conflict and violence that are manifested not only in scarcity and non-existence of infrastructures Critical, but also in restricted access to the benefits that they provide, make up one of the most serious problems in terms of security in recent decades, since the conflicts generated as a result of the lack of access to critical resources decant in ruptures of the coexistence pacts not only between nations but also between individuals. In this context, regions such as Asia, Africa, Latin America and Eastern Europe have suffered major setbacks after the COVID-19 pandemic in terms of institutional stability and social cohesion, which has been deteriorated by innumerable violent conflicts that tend towards radicalization and which in turn translates into food insecurity, increased inequality and demographic changes. According to World Bank Group estimates:

> (...) An additional 20 million people live in extreme poverty in countries affected by violent conflicts since the start of the COVID-19 pandemic, while by 2023, the GDP of affected countries is expected to be 7.5% lower than pre-pandemic forecasts. In turn, it is estimated that more than 84 million people were forcibly displaced by mid-2021, before the war in Ukraine sparked the fastest-growing refugee crisis in Europe since the end of World War II. Of that number, 85% live in developing countries.
> (WBG, 2022)

This situation raises new questions for a global system where Critical Infrastructures have been designed to generally respond to situations of stability, seeing countless subsystems collapsed as a result of recent geopolitical events, which added to a significant lack of financing and the impossibility of access to reliable investment sources in a war context, has put into crisis the various sectors that make up the broad spectrum of infrastructures that are being overwhelmed due to a lack of forecasts and resilience mechanisms, a fact that denotes the type of infrastructure plan designed in the middle of the XX century, that is, a plan far from those characteristics that have been exhorted by various systems of global governance and that are summarized as previously mentioned in sustainability, resilience and criticality.

Regarding knowledge and information technologies, different international organizations have addressed the limitations related to the digital divide and the need to carry out infrastructure projects necessary to democratize the global technological transformation. Digital technologies are an essential element within the Critical Infrastructures for human development and offer the actors of the global system unique opportunities to accelerate the growth of their economic and sociocultural variables. However, according to World Bank data at the end of 2021:

> (...) almost 3 billion people did not have Internet access, a situation that necessarily entails the lack of digital inclusion that translates into different types of problems. The proportion of users of internet services in urban areas is double that in rural areas. 71% of the world's youngest population aged 15-24 use the Internet, compared to 57% of all other age groups. The digital economy is equivalent to 15.5% of the global gross domestic product (GDP), and in the last 15 years it has registered a growth two and a half times higher than the world GDP. A 10% increase in mobile broadband penetration in Africa would generate a 2.5% increase in GDP per capita.
> (WBG, 2022)

In the post-COVID-19 global context, digitization efforts accelerated around the world. However, most developing countries currently do not have the tools or adequate environments to eliminate the digital divide, thus making evident the important shortcomings in their Critical Infrastructure programs.

5. Concrete cases of Critical Infrastructures. Japanese resilience and its energy policy

In a global context where the interconnection of the different systems and subsystems is configured as an inexorable characteristic of the current civilizing factor, some States and International Organizations, aware of the importance of Critical Infrastructures, have developed different defense and protection mechanisms for them. emphasizing risk control associated with anthropological and/or natural factors. In this context, the Critical Infrastructure protection system of countries like Japan is constituted from operational and regulatory frameworks such as the Basic Policy for the Protection of Critical Information Infrastructure, which is defined as:

> A basic policy shared by the government, which has responsibility for the protection of the Critical Information Infrastructure and its providers, who independently carry out the relevant protection measures. It was established to serve as the basis for Japan's policy related to information security measures for critical infrastructure, such as the promulgation of the "Special Action Plan on Cyber-terrorism Countermeasures for Critical Infrastructure" (concluded in the report of December 2000 Information Security Promotion Meeting), prior to the establishment of the National Information Security Center.
> (Information Security Policy Council, 2014)

On the other hand, the Second National Information Security Strategy is also part of the normative and programmatic scheme of Japanese strategies aimed at resolving disturbances with the capacity to affect Critical Infrastructures. In this sense, such a national strategy has as its fundamental purpose:

> Foster the development of the whole society by ensuring safety and security as information technologies become available. Therefore, the basic objective of the First National Strategy, to create a secure environment for using information technologies, should be maintained as a core policy and measures should be taken to solve problems in policy making.

(National Information Security Policy Council, 2009)

Outside the government sphere, other centers and organizations participate in the Critical Infrastructure protection system. Some, like the International Research Institute for Disaster Sciences, aim to:

> Apply to society knowledge derived from research on the 2011 Great East Japan Earthquake and Tsunami and its recovery and the results of disaster research around the world; build studies to build social systems in which humans and society can respond wisely to changing disasters, overcoming difficulties and applying lessons learned; and systematize these studies as practical research on disasters and build their academic value.
> (Irides, 2019)

Finally, at the international level, collaboration policies between different States allow Japan to participate in rounds of recognition of possible threats and disruptive factors of Critical Infrastructures. In this sense, the Euro-Atlantic Resilience Center, of which Japan participates, maintains that:

> Japan is in many fields an example to the whole world in terms of resilience. Its experience and insights are extremely valuable for the Euro-Atlantic space.
> (…) This strategic foresight is one of the most important aspects of resilience, along with what we can call organic resilience – something that comes primarily from a high level of education and from the quality of infrastructure. I would also add the need for high-performance structures – especially in the defense and civil emergency systems – which have the capacity to provide rapid and effective responses to crises; and this ability is obtained through constant training, simulations, tabletop exercises.
> (…) In conclusion, resilience is composed of three major factors: Organic resilience, which is a quality built over a long period of time and includes aspects such as the quality of infrastructure or the performance in education for the general public, not just the elite (because the general public can show societal resilience in the face of hybrid aggression and misinformation); well-established and well-trained inter-institutional crisis cells, ready to act at any time, for each category of potential crises; and Strategic foresight – meaning the ability to detect tomorrow's crises in advance.
> (Euro Atlantic Resilience Centre, 2022)

In conclusion, Japanese history has demonstrated over the last eighty years the firmness of a society willing to be part of a system that responds to the characteristics of criticality, resilience and sustainability, which has been proven in the importance of for Japan its infrastructure networks and its constant updating and evaluation of its effectiveness against possible catastrophes.

Conclusion

Undoubtedly, the application of historiographical methods, especially those related to the History of Present Time, can give rise to the widest debates about the role of Historiography in addressing current issues. Faced with such questioning, it would suffice to urge the reader to scrutinize those theoretical and even philosophical approaches born outside of Western academic culture, which have the capacity to carry out structural observations of historical experience in real time without thereby falling into subjectivism. Once such limitations have been resolved, Historiography can be observed from a new point of view, integrating, global, made up of thousands of ways of thinking and scientific approaches regarding an object of study typical of transitive phases of History, in this case that of the Critical infrastructures.

The choice of such topic is not random, as mentioned in the introduction of this work, one of the most important functions of Historiography is the preservation of civilization and in it Critical Infrastructures play a role of great importance. For this reason, the topic of Critical Infrastructures should not be left out of the historiographical perspective, since no current conflict with the potential to generate disturbances in the global system lacks its own history, a history that must be accessed to try to unravel the roots of each current historical experience.

At the same time, after carrying out a detailed analysis of the orientation that the study of Critical Infrastructures has taken (essential to sustain the civilizing factor), it is not surprising to find institutions, organizations and States dedicated preferably to addressing the technological facet. and material from infrastructure networks, especially that related to information technology. It is possible that in the face of this way of approaching the problem, there are other types of infrastructure that are being left aside, as well as other concepts related to them, such as the possibility of access and the destruction of gaps. In this sense, a Historiography of the Present Time that pays attention to this theme must try to broaden the horizons of the object of study, so that within its spectrum the greatest number of variables and perspectives possible are included. In this sense, the example of Japan, which has built defense mechanisms for its networks based on an

efficient exercise of resilience, sustainability and criticality, it can become an exemplary model for those States that are still trying to be part of the global system and achieve the benefits that are subtracted from such inclusion. Undoubtedly, the subject will be debated over the next decades over and over again, giving rise to new perspectives and approaches, and although an attempt has been made through this work to make a descriptive and awareness-raising contribution regarding the subject, sometimes unrelated to the South American States, the systemic approach used to access the object of study can and should be perfected by their peers, since the civilizing factor is an issue that concerns everyone.

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