

2024 DECLARATION CÓRDOBA

A CALL TO ACTION FOR WORLD LEADERS TO FOSTER ENGINEERING EDUCATION AND DEVELOPMENT, MITIGATE DAMAGES DUE TO NATURAL DISASTERS, PLAN, DESIGN, AND BUILD RESILIENT INFRASTRUCTURE THAT IMPROVES HEALTH AND GENERATE PROSPERITY, EMBRACING ARTIFICIAL INTELLIGENCE

Academicians from the Americas and Europe convened in Cordoba Argentina on the 21st and 22nd days of November, 2024 at the Pan American Academy of Engineering Biennial General Assembly, together with the leadership of national engineering academies, national and private universities, societies and institutions that represent academics and engineering professionals, propose public policies to *“Foster Engineering Education and Development, Mitigate Damages due to Natural Disasters, Plan, Design, Build Resilient Infrastructure that Improves Health and Generates Prosperity, Embracing Artificial Intelligence.”* Hence, Academicians agree to share their findings with the professionals and policy makers of all countries of the hemisphere and the world, as follows.

A GLOBAL PRIORITY

Despite widespread dissemination of information and concerted efforts across the globe, greenhouse gas emissions have not reduced. Its impact on Climate Change affects the frequency and magnitude of natural disasters. Their consequences include the loss of human lives, fauna and flora, the destruction of ecosystems and livelihoods for humanity and the destruction of homes, schools, hospitals, and infrastructure. This impact will affect the entire world but will be most acute for the most vulnerable populations, marginalized communities, small islands and developing countries.

The advance of Artificial Intelligence technologies drives demand for new electricity supplies, distribution, and security. These technologies, when deployed for disaster resilience, offer unprecedented solutions that will protect lives, reduce losses, and increase prosperity.

MITIGATING THE IMPACT OF CLIMATE-RELATED DISASTERS

To achieve the Sustainable Development Goals set for 2030 and Net Zero Emissions for 2050, it is estimated that some Seven Trillion US dollars will be invested in annual infrastructure that enables a low-carbon and climate-resilient future. The effective investment of such an amount of resources requires concerted actions by those responsible for the planning, development, design, construction, and operation of each work.

The planning, design, construction, and operation of all infrastructure to support human activity must reduce CO2 emissions and ensure works are resilient and can adapt to the changing climate. Sustainable and climate-resilient construction provides a path forward to achieve Resilience, move towards the Net Zero goal, and ensure the well-being of all ecosystems and humanity.

FAILURE IS NOT AN OPTION AND IT IS UP TO ENGINEERS TO TAKE RESPONSIBILITY

Conventional infrastructure project design does not adequately address these risks; consequences of failure are unacceptable. It is essential to develop and build infrastructure works that enable a low- carbon and climate-resilient future to mitigate the impact of climate change and ensure the best quality of life for all.

To achieve the objectives of the Paris Agreement and Sustainable Development, it is essential to include engineers in the planning of all projects from conception, planning to operation, integrating knowledge of human behavior, knowledge management and media and communications in all phases of project management.

This requires that managerial knowledge be integrated into the technical training of engineers. University/Industry alliances that enable young engineers to contribute their creativity and entrepreneurship early in their professional careers as to achieve sustainable, climate resilient work that lasts.

THE IMPACT OF CLIMATE CHANGE ON THE LEGAL SYSTEM

It is imperative to recognize the consequences of climate impact on land surfaces, coasts, glaciers, oceans, seas, lakes, river basins, mangroves, and wetlands. Since PAAE San Juan Declaration This has already been acknowledged through the modification of two nations boundary. This reality also affects coastlines where the right to private property conflicts with the right to use recreational areas and the exploitation of the common heritage. Consequently, without further delay, the legal system must be strengthened to ensure the resolution of conflicts that are anticipated locally, nationally, and internationally.



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TO MOVE FROM WORDS TO ACTION WE SPECIFICALLY PROPOSE;

1. Leverage the use of AI technologies to plan, design and build resilient, efficient, and effective infrastructure. Also leverage AI to ensure energy efficient use of energy and that there is adequate clean energy supply and distribution to support AI.
2. Incorporate the knowledge of scientists, engineers, and professionals in the design standards, building codes, modernization, construction, and operation of all public and private works, as well as in the management of risks inherent to each work.
3. Disseminate the knowledge of the impacts of Climate Change and how it can be mitigated through public education at primary levels.
4. Ensure that special consideration is given in all decision-making to populations of the most vulnerable countries and communities.
5. Integrate green building solutions complimentary with nature in all development.
6. Promote and implement fair, inclusive, and sustainable financing in all constructions.
7. Strengthening infrastructure, ensuring resilience to climate change
8. Mitigate the vulnerability of any construction site to natural disasters to ensure the availability of affordable insurance and reinsurance, mitigate disruptions and ensure rapid recovery.
9. Encourage and implement transparent and sustainable procurement practices.
10. Incentivize the financing and construction of renewable energy, water harvesting and recycling systems, the use of recyclable materials and safe, accessible, and affordable infrastructure.
11. Implement codes and practices that support a rational reduction of the carbon and hydric footprints.
12. Promote research, specifically leveraging AI, for innovative technologies that support sustainable and resilient

INTEGRATION OF INITIATIVES AND COLLABORATION

Being aware of initiatives of regional and international organizations and the importance of leveraging those with a common vision The Academy supports the fundamental elements of the ASCE Stimson Declaration and those of the Atlas Partnership for Climate Resilient Infrastructure, such as:

1. International exchanges to promote the collaboration of all engineers in the planning, design, construction, and operation of quality, sustainable and resilient works.
2. Infrastructure report cards to prepare reference reports to provide optimal quality in the development, design, financing, and construction of works.
3. Ensuring the development, design, construction, and operation of quality works with the highest standards and guidelines to promote a better quality of life, sustainability, mitigation, adaptation, and resilience to protect the environment and ensure the well-being of humanity in all corners of the world.
4. Attract more investment and better insurance coverage by integrating total quality processes that reduce risks to life and property, thereby preserving lives and resources.

Signed in Córdoba, Argentina during the Biennial Meeting of the Pan-American Academy of Engineering, today November 22, 2024.

Benjamín Colucci Ríos, PhD, API
Secretary

José Domingo Pérez Muñoz, P.E., API
President

