



CICCP, CICPC-CECPC, ECCE, WCCE

MADRID DECLARATION

“CIVIL ENGINEERS COMMITTED TO UN’S OBJECTIVES OF SUSTAINABLE DEVELOPMENT AND CLIMATE ACTION”

The undersigned, on the occasion of the celebration in Madrid of the 5th Iberoamerican Congress of Civil Engineering, the 7th General Assembly of the Council of Civil Engineering Professional Associations of Portuguese and Spanish speaking countries CICPC-CECPC , the 63rd General Assembly of the European Council of Civil Engineers - ECCE and other events organized by the World Council of Civil Engineers - WCCE proclaim that:

THE CHALLENGES OF OUR SOCIETY

Social and economic development relies upon the sustainable management of the world’s natural resources. The depletion of such natural resources and its negative effects on environmental degradation, among others; desertification, drought, land degradation, water scarcity and biodiversity loss step up the challenges facing humankind.

In addition to these, our world faces the challenge of climate change and an unstoppable process of urbanization and population growth. Climate change is one of the biggest challenges of our time and its adverse effects undermine the potential of all countries to achieve sustainable development.

Such situation requires well targeted and sustained action in time, not subject to political cycles, with the joint commitment of governments, professionals and society as a whole.

OUR VISION, OUR ROLE

We, civil engineers set our collective role to overcome the challenges faced by our society in order to achieve full social and human development in harmony with the environment and on such grounds we consider that

- Civil Engineers, as members of the global community must base its practice in compliance with the ethical, human and social values of our time.
- Civil engineering should commit its expertise and practice to fulfill social and technical demands linked to the territory.
- Consequently, civil engineering, as a professional activity, should be able to identify feasible goals consistent with stakeholders' interests and concerns through effective management and efficient use of the tools and resources available.
- The existence of an Engineering-Society Nexus implies the mutual commitment on which engineers take the responsibility to faithfully serve society, whereas society is to provide the means to honour such undertaking.

Civil Engineers share the global concern for sustainable development and climate change. Therefore, we offer our technical capability and expertise to achieve the **17 Sustainable Development Goals (ODS) and his 169 goals** as reflected in Agenda 2030 for the sustainable development of the UN General Assembly approved by September 2015. We also align ourselves with the efforts to **enforce the agreements of the Conference of the Parties, COP-21 in Paris**, December 2015, recognizing the need for a progressive and effective response to the urgent threat of climate change, on the basis of the best available science.

The objectives to be accomplished, in particular the satisfaction of population's basic needs and the development processes conducive to an overall improvement of living conditions, **find Civil Engineering an essential tool to make these objectives come true.**

OUR RESPONSIBILITY

The responsibility of Civil Engineers to society is very high. Under society's mandate to create a sustainable world and improve overall quality of life, **civil engineers** concur with American Society of Civil Engineers' Vision 2025, according to which we **serve as ethical, competent and collaborative experts:**

- **Planners, designers, builders and managers** of economic and social engine of society, which is called the built environment;
- **Custodians of the natural environment and the proper and efficient use of its resources;**
- **Innovators and integrators of ideas and technologies** in the public, private and academic sectors;
- **Risk Managers** of any uncertainties caused by natural events, accidents and other threats; and;

- **Leader in debates and decisions** that shape both environmental and infrastructure public policies.

Civil engineers have clearly defined responsibilities in planning, design, construction, operation and maintenance of physical infrastructure. This infrastructure requires the use of natural resources and includes all types of buildings, power plants and distribution lines, industrial facilities, transportation networks, water resource services and urban water systems. **These are expected to remain in service, sustainable and safe for their intended life cycle,** typically from 50 to over 100 years. **Infrastructure is exposed and potentially vulnerable to extreme weather effects** such as droughts, floods, heat waves, strong winds, storms, fires, and accumulation of ice and snow. Engineering Codes and practice intend to provide acceptably low risk of failures in serviceability, durability and safety throughout the service life of such infrastructure and services.

Civil Engineers must now apply their knowledge to also find durable ways of providing social welfare consistent with respect to the natural environment. Designing sustainable solutions to address society's infrastructure needs require proper understanding of the natural processes, in order to assess any possible environmental impacts before its implementation and, if needed, propose the mitigation or protective measures needed. Proper internalization of environmental costs is to be included to any economic analysis in addition to any direct or indirect costs, as such environmental costs are generally supported overall by the community without being accounted on other stakeholders.

Therefore, we, Civil Engineers, need to incorporate into our professional body of knowledge the disciplines which enable the inclusion of sustainability criteria for climate action and environment to be included in any multicriteria alternative assessment along with other more traditionally considered criteria (economic, geomorphological, geotechnical, hydraulic, structural . . .).

Territory in its natural state, in addition to presenting natural risk factors (flood, fire, lightning, volcanic eruptions, storms in the sea and coasts, earthquakes, tsunamis, etc.) has a limited hosting capability, with human development requiring action on the territory, of which a large share falls under the commission of Civil Engineers to study and implement.

A large share of United Nation's 17 Strategic Development Goals -SDGs are deeply linked with the practice of Civil Engineering:

- Goal 6 - "Ensuring the availability and sustainable management of water and sanitation for all"
- Goal 7 - "Ensuring access to affordable, reliable, sustainable and modern energy for all"
- Goal 9 - "Building resilient infrastructure, promoting inclusive and sustainable industrialization and foster innovation"
- Goal 11 - "Making cities and human settlements inclusive, safe, resilient and sustainable"
- Goal 13 - "Take urgent measures to combat climate change and its impacts"

- Goal 14 - "Conserve and sustainably use oceans, seas and marine resources for sustainable development"
- Goal 15 - "Protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt the loss of biodiversity"

It should also be noted that ensuring adequate water quality is a goal which is horizontal to other goals objectives, such as Goal 3 "Ensure healthy lives and promote the well-being for all at all ages".

We also align ourselves with the Paris Agreements presented at the Conference of the Parties, COP-21 December 2015, recognizing the need for a progressive and effective response to the urgent threat of climate change, on the basis of the best available science.

COP-21 Agreements aim to revert global average temperature to no more than 2° over pre-industrial levels and drive efforts to reduce such limit to just 1.5° over pre-industrial levels, recognizing that this would therefore substantially reduce the risks and effects of climate change and improve our adaptability to climate changes' impacts and promote low Green House Gases - GHG emissions driven development.

The implementation of the Paris Agreement, requires the workings a Subsidiary Scientific and Technological Advisory Body to which several important tasks should be entrusted such as the development of specific working programs and action plans regarding several aspects of the Paris agreement. Engineering contribution to such body is to be necessarily and should be channelled through WFEO and its member organizations.

THE ROLE OF CIVIL ENGINEERING PROFESSIONAL ASSOCIATIONS

In a globalized world, in which the civil engineering profession contributes decisively to improve the quality of life of mankind, it is necessary to establish sound partnerships between those who share common interests, for the benefit of our professional Engineers and society as a whole .

Due to this, we advocate the need for the existence and irreplaceable role of Civil Engineering Professional Associations to

- a) promote adequate broad-based training of at least 5 years to be expanded throughout the professional life through continuous professional development.
- b) regulate the civil engineering practice for the sake of society.
- c) provide continuing professional education to its members.
- d) Enforce ethical and deontological codes of practice ensuring: honouring public interest; security and protection against unlicensed practice; efficient use of natural resources; environment protection; vulnerability reduction to natural disasters and climate change (in their dual role of mitigation and adaptation).

- e) contribute to the prevention of corruption (zero tolerance).
- f) cluster the different professional groups involved in civil engineering.

We want to become present in society, interacting with all stakeholders to understand their needs, helping them in providing the best response and vindicating our role and function.

We know it is necessary to develop international platforms to position adequately the civil engineering community in a global world, to facilitate solidarity, knowledge and experience transfer and professional mobility of Civil Engineers, in a context in which albeit local variations, there is a growing need for civil engineers worldwide.

OUR COMMITMENT

The signatories representing a large share of the more than 8.000.000 Civil Engineers in the world, **consider civil engineering as a profession of public service and because of this we commit ourselves to:**

1. **Assert the ethical commitment towards society of the Civil Engineering professionals over any other influence that may risk independent judgement and professional dignity.**
2. **Enforce ethical codes of practice ensuring:** the honouring public interest, protection against unlicensed practice; efficient use of natural resources; environment protection; vulnerability reduction to natural disasters and climate change (in their dual role of mitigation and adaptation).
3. **Foster links between the civil engineering community and society,** promoting greater participation and commitment to sustainable development and climate action.
4. **Support the COP-21 Paris Agreement on climate and United Nations' Strategic Development Goals and its 169 associated targets through the implementation of innovative technologies and engineering practices,** looking forward to the **implementation of cost-effective technologies,** providing solutions based on sound engineering criteria and robust climate projections, in order to mitigate the rate and magnitude of climate change and its inevitable impact on society and quality of life.
5. **Follow the codes of practice** adopted by the World Federation of Engineering Organizations (Code Of practice for sustainable development and environmental protection "Think global, act local", 2013 or "Code Of Good Practice: Principles of Climate Change Adaptation for Engineers", 2015) **and developing them specific to each local environment.**
6. **Enrich Civil Engineering body of knowledge by broadening its education** in disciplines natural sciences and economic analysis, risk management and climate change impact assessment, **encouraging continuous professional development** and knowledge updating in these fields.
7. **Convey to society the leading role of the Engineer in preventing natural hazards and**

sustainable land management, communicating effectively the needs in these areas.

8. **Bolster R&D + i** projects regarding sustainability and climate action, addressing the Nexus between actions on the territory with the use and conservation of natural resources and environmental protection, risk management and corrective and compensatory actions monitoring for the creation of methodologies to enrich future performance analysis through experimental data.
9. **Celebrate congresses, workshops, courses, conferences and meetings** in which the **principles and commitments presented in this Declaration are fostered** and its application in the different areas of activity of Civil Engineers.
10. **Contribute through our practice** in achieving the following objectives
 - a. **The reduction of Greenhouse Gases - GHG emissions** among diverse sectors through regional and local action.
 - b. **Improved climate resilience resistance of various types of infrastructure** to withstand climate impacts, and increase their reliability and service lifecycle during extreme weather events.
 - c. **The achievement of the engineering challenges for the accomplishment of sustainable development**, directly linked to United Nations SDGs.
11. **Collaborate with our scientific and technological partners** to achieve the desired results through methods and techniques such as systems thinking; the development of international standards and codes of practice; conducting climate risk assessment as part of normal practice; and the adequate assessment of social, economic and environmental impacts.
12. **Cooperate actively with the respective national governments** in order to:
 - a. Design and develop, jointly with the higher education authorities, **education programs and training curricula to provide sound civil engineers to assume their significant responsibility towards society on topics such as sustainable development and climate action.**
 - b. **Develop and implement infrastructure investment plans to create the most feasible sustainable development** through continuous and steady pluriannual planning, independent from political cycles.
 - c. **Foster the participation of reputed engineers in decision making** either in technical or political positions.

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