



BRASILIA DECLARATION

The participants of the International Conference on New Approaches to Engineering for the Sustainable Supply of Water and Energy, meeting in Brasilia in July 2016, agreed to and decided to issue this Declaration.

Whereas:

- the sustainable use of the planet's natural resources is essential to ensuring the maintenance or enhancement of the society's quality of life;
- climate change has been causing unprecedented situations for the replenishment of water resources in large urban conglomerates and great number of island nations;
- the global phenomenon of urbanization is an irreversible process that generates demands for energy and water whose supply requires access to sources increasingly distant from consumption sites;
- new and existing technologies combined with improved processes will allow proper implementation of the necessary measures to ensure the sustainability of water and energy use;
- the implementation of sustainable solutions in the supply of water and energy must take into account local and regional needs and priorities, as well as existing cultural conditions and human and financial capacities;
- the generation of energy through the combustion of fossil fuels must be drastically reduced and, in order to reach the targets of the Paris Agreement on Climate Change, be replaced by clean sources with almost zero emission of greenhouse gases (GHGs);
- energy policies of each country will have to facilitate the replacement of fossil fuels in electricity generation by any other technology that emits much smaller amounts of GHGs;
- the entire energy supply cycle - generation, transmission, distribution and use - must be considered in meeting the objectives of the Paris Agreement, along with the selection of primary energy sources and renewable sources, the improvement of the efficiency in use and transmission, and the analysis of the environmental and economic consequences;
- the Paris Agreement points to the important role of providing incentives to activities that generate emissions reduction, including tools such as setting a price on emitted carbon, as well as the introduction of so-called externalities in the economic comparison of clean energy production.



The participants state that:

1. To ensure the successful implementation of sustainable supply programs of energy, drinking water and wastewater treatment systems, policies based on factual evidence, scientific knowledge, the state of the art of technology and engineering criteria on technical and economic feasibility should be established independently of ideological postulates.
2. The Engineers are qualified to substantiate the implementation of solutions that help ensure the society's quality of life in exercising their profession, particularly in the areas of:
 - Sustainable water supply, through
 - the design and implementation of systems for the efficient and diversified use of water resources including use of groundwater, wastewater, effluents, desalination and rainwater collection;
 - the management of water resources conservation processes through balanced distribution among multiple users, in various available ecosystems;
 - improving the efficiency and availability of irrigation and water use management practices.
 - Sanitation and sewage management, through
 - the improvement of technical training in local institutions for research and development, and the training of technical staff in local government for the integrated management of waste and sewage;
 - the establishment of careful management for waste of human origin, for the concentration, collection and treatment of sewage, and for its reduction, recycling, reuse, recovery and disposal;
 - the provision of technical assistance and personnel training for the separation, collection, treatment and disposal of waste, as well as establishment of storage sites, development of public health policies, enactment of legal provisions, programs and infrastructure for waste and sewage.
 - Sustainable energy supply, through
 - the use of all clean energy sources that are available or in an advanced stage of development, including technologies that help reduce energy demand, such as those that, even with not necessarily insignificant costs, increase the efficiency in transmission and end use;
 - the implementation of systems using suitable renewable energy, including bio-fuels;



- the improvement of the clean technology economy, such as photovoltaics and bio-fuels from cellulosic materials, as well as the development of efficient systems for carbon sequestration in the combustion of fossil fuels;
- 3. The considerable reduction in the use of fossil fuels will introduce different approaches in the planning and engineering of power generation units and transmission lines, through greater use of clean energy sources such as solar, hydroelectric, wind, nuclear, geothermal and tidal power, or neutral sources such as bio-fuels, introducing new paradigms in location conditions and the "mix" of projects to ensure system stability, as well as to analyze their technical, economic and environmental viability.
- 4. The transition to economies of low carbon emissions in transport, aimed at replacing unsustainable systems of energy consumption, will result in important cultural transformations and social adjustments that are going to be difficult to implement.

Brasilia, July 29, 2016

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