

C current affairs are important for a scientific journal too. Last November, 15,372 scientists in all the disciplines, including numerous Nobel prize winners, signed the appeal published on BioScience entitled *World Scientists' Warning to Humanity: A Second Notice*. The document, probably the longest ever signed by scientists, emphasises the fact that the future of humanity is hanging by a thread.

This is the second version of the document published in 1992 and signed by 1,700 scientists who, even then, were forecasting the impacts of climate change, deforestation, an unfair distribution of access to drinking water and of demographic growth on health and wellbeing, putting “hopes for the future of human society at severe risk”.

According to the figures disclosed by the scientists who have signed the new appeal, since 1992, emissions of CO<sub>2</sub> have increased by 62%, while global temperature has risen by 29%; vertebrate life forms have diminished by 29%; the amount of drinking water per capita has fallen by 26%; the “dead areas” of our oceans have increased by 75%; over 121.46 million hectares of forest have been lost.

Plants, animals, insects, fish and other natural species produce oxygen, clean the water and pollinate. It has been calculated, perhaps a little haphazardly, that these “natural services” have a value of between 125 and 145 trillion dollars a year; but they are subject to constant pressure due to the increase in population (two billion people since 1992, equating to 35%).

The way things stand, the only positive trends are those related to the replenishment of the ozone layer, which protects us from ultraviolet rays. This is thanks to the Montreal Protocol signed in 1987, and the growing use of renewable energies.

The 1992 document indicated the need to eliminate the use of fossil fuels, the main cause of emissions of CO<sub>2</sub>. But the emissions of the United States are scheduled to increase 2.2% in 2018, partly due to the cold winds that are expected to hit the country; China's and India's emissions continue to grow, albeit to a lesser extent than years ago.

It has been calculated that, to avoid irreversible damage, emissions have to be near zero by 2050. According to the European Commission, we have to reduce our emissions of greenhouse gases by 80% compared to the levels recorded in 1990, but exclusively through internal reductions, without resorting to international credits. A first 40% abatement (32% of the total) should be achieved by 2030, with a second 60% abatement (48% of the total) by 2040. As long as the reduction regards every sector that produces emissions (energy production, industry, transport, buildings, construction and farming) and the transition towards an economy with low emissions of carbon is feasible and economically affordable.

The *Warning to Humanity* implicitly confirms the need for the institutions to cooperate and for interdisciplinary integration, as stated in editorial no. 1 of CSE; but the convergence between the governments and the economies of the world's biggest countries, which produce most of the emissions into the atmosphere alone, is just as important, and unfortunately still a long way from being achieved.

This issue of CSE contains, for the topic Planning and Land Safety, the paper *The Stava catastrophic failure of 19<sup>th</sup> July 1985 (Italy): technical-scientific data and socioeconomic aspects* (G. Tosatti), which looks at a significant example of the risks ensuing from the insufficient safety of the hydraulic works in areas subject to extensive intervention by man.

On the 19<sup>th</sup> of July 1985 at Stava near Tesero (Trento Region, northern Italy), two impoundments collapsed, causing the death of people and the destruction of buildings. The two adjacent basins were constructed for the decantation and storage of fine-grained waste material (tailings), which was pumped from a nearby fluorite mine. The consequence of the failure was a vast mudflow that found its way downstream along the Stava valley. The failure occurred as a result of the collapse of the upper basin, which overwhelmed the lower basin. The paper examines the technical errors, shortcomings, responsibilities and consequences of this disaster.

For the topic of Environmental Design, the paper *Methodologies for the View Protection Areas and Challenges of Landscape Planning in Japan* (M. Miyawaki) focuses on the methodologies of landscape planning in Japan, where View protection areas were officially adopted in landscape plans at local authority level after the first Japanese landscape law (no.110/2004) was passed. The author studied the recent challenges for view protection from central Tokyo to Mt. Fuji. Through case studies, the influences of the earth's curve and light refraction over a distance of 100 km are estimated, also giving information on regulation methods and the effects on view protection areas.

The paper *Aesthetic Vs. functional restoration of urban and peri-urban rivers: the Manzanares River in Madrid* (F. Magdaleno) concerns the Manzanares River (Madrid, Spain) as a paradigmatic case study of the current debate about the most suitable restoration approaches to urban and peri-urban rivers, also allowing some insights which can be transferred to other urban and peri-urban rivers, both in Mediterranean and non-Mediterranean areas. A multi-functional approach to urban rivers is proposed, considering the importance of providing self-sustaining actions, which can rehabilitate essential river processes inside the city, and which offer relevant ecosystem services to city dwellers.

For the topic of Energy Efficiency, the paper *Estimating Naples' urban heat island effect using the March 20, 2015 partial solar eclipse* (A. Mazzarella and N. Scalfetta) takes an original look at the emissivity estimates during the solar eclipse that occurred on March 20, 2015, the surface air temperature and the solar radiance records, to characterize the urban heat island of Naples as due to an additional source of heat of about 90 W/m<sup>2</sup> with respect to Casamicciola, on the island of Ischia.

For the first time, we are presenting matters which concern ancient times. The first regards the construction technique used by the Romans (*Roman buildings: mortar, hydraulic mortar and pozzolanic concrete in the Gulf of Naples, Campania – Italy*, R. Esposito), which we can still learn a lot from today.

The aim of the article is to summarise the information published with regard to research carried out into mortar and concrete materials in relation to roman buildings in the gulf of Naples, Italy, as an area implicated in multidisciplinary studies on the raw materials and Roman construction technologies with a view to restoring the archaeological heritage. Two case studies are presented: the Phlegrean Fields (Puteoli, Baia, Misenum) and the Vesuvius area (Pompeii, Herculaneum, Stabia, Surrentum). The results indicated that monuments of importance are built using a variable – in time – composition of mortars and conglomerates. Furthermore results confirmed that Roman engineers extensively used local geomaterials such as volcanic and sedimentary aggregates mixed with hydrated lime.

The second looks at a case of geoarchaeology (*Evaluation of recent vertical motions along the Island of Capri: geoarchaeological evidences and implications at the Roman villa of Palazzo a Mare*, C. Stanislao) which proves the utility and effectiveness of survey methods on the morphological evolution of the territory and the landscape. The paper presents geoarchaeological and geomorphological results along the northern and central coasts of the island of Capri, where the submerged ruins enabled the ancient position of both the sea level and the coastline to be reconstructed, as well as making it possible to evaluate the type, entity and rate of vertical ground movements. The surveys covered a maritime villa attributed in its first phase to Augustus, Palazzo a Mare. A rapid displacement due to aseismic and microseismic phenomena occurred during post-Roman age, which caused the coast to drop with consequent shoreline adjustments. An integrated approach linking the morpho-evolution of the landscape to proper management of exposed cultural heritage and the resolution of coastal hazard, is essential, particularly if we consider the population concentration in coastal zones.

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