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EDITORIALE

LEADER

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"NATURAL DISASTERS", GLOBAL CHANGE AND THE NEED FOR A COMMON LANGUAGE

Once again, while writing this leader article, I find myself having to comment on yet another natural event that had catastrophic consequences over a wide area of Italy. In May, two floods occurred in Romagna (northern Italy) just two weeks apart from each other. The second caused an estimated economic damage of about €9 billion and killed 15 people.

Such natural disasters cause us to question the relationship between climate change, extreme weather events, and related impacts on our land and environment, as it happened in Romagna, where excessive land take and poor maintenance of hydraulic structures have become dramatically manifest in the past few decades.

In issue 2/2021 of this journal, I made a few remarks on the floods that had taken place in Germany and Belgium in July 2021, stressing the need for putting in place environmentally sustainable international and national policies. I also pointed out that the European Green Deal, i.e. the strategic agenda of the European Commission, was an important start in that direction.

However, confronted with these crucial political priorities and initiatives, we should bear in mind one fundamental aspect: we should not ascribe the recent floods in Europe and other areas of the world solely to climate change, invoking it as the cause of all the catastrophic consequences induced by the extreme events that we have lately witnessed. At times, we feel that, whether unintentionally or intentionally, people tend to neglect a primary factor that is involved in the increased damage to property and casualties caused by rain- and flood-induced disasters. This factor is the dramatic increase in the "risk exposure" of people and property, which has appeared in all its tragic reality in the recent floods in Romagna.

On these particularly complex and sensitive issues, I have recently had the opportunity of exchanging views in various scientific forums. What I noted is that the exponential increase in the economic value of all the exposed assets – due to the huge growth in human population, which has gone from just above 2 billion to over 8 billion in a matter of 60 years – is frequently underestimated. But even more significant is the increase in urbanised population, which has risen in the same period from 1 billion to about 5 billion. Merely fortuitous or surreptitious forgetfulness?

With regard to climate change (or, rather, global change), a book − entitled *Dialoghi sul Clima* − has been recently issued under the patronage of *Centro di Ricerca sui Rischi Geologici* (CERI). Here is a translated passage from the foreword that I wrote for it.

There is no doubt that climate and climate change now rank among the most topical issues of high scientific and social interest.

In the past few months, Italy and many European countries have experienced hot temperatures and water supply emergencies, which have highlighted once again, in tragic terms, the issue of climate change, sparking an increasingly heated debate about its causes and the actions needed to fight against it.

While temperature and precipitation trends in the past few decades have been clear and unquestionable, the causes and mechanisms underlying them have not appeared to be equally certain. Many international studies claim that the only cause of climate change is the emission of greenhouse gases due to the use of fossil sources and, more generally, to air pollution, with an exponential increase in CO_2 emissions in the past decades.

In this regard, I feel that we should be very clear about a fundamental point. It is true that we should radically and immediately reduce the pollution of environmental matrices (air, soil, and water) and the use of the Earth's resources that are necessary for our survival, from water to rare earths (the latter being increasingly precious and sought-after to manufacture high-tech products). Nonetheless, it is also true that the proportion of global warming due to human activities has not yet been accurately defined.

In this climate of uncertainty and hoping that further studies will provide effective answers to these doubts, there is only one way left: cutting pollution, making a really sustainable use of georesources, and implementing policies of adaptation to climate change, aimed at mitigating its effects… Only a fair and rigorous debate, based on measured, validated, and shared data, as well as on interpretive models capable of replicating observations, can be

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helpful and have positive implications for the knowledge society, which looks to the future of our planet and of new generations with a sense of responsibility and without bias.

Simply because I wrote these few lines, I was accused of climate change denial and immediately placed in the list of "bad scientists" by national representatives of major environmental associations. I have nothing to add to this topic.

Another issue on which I have had multiple exchanges of views in the past few years is the need for experts of natural and anthropogenic risks from different disciplines and cultural backgrounds to adopt a common language. Indeed, in the past five years – as Chairman of the Major Risk Commission/Presidency of the Council of Ministers of the Italian Government – I have realised that, even among experts of natural and anthropogenic (or technological) risks, the meaning assigned to key terms, such as vulnerability, is not always univocal. It is easy to imagine the confusion and negative consequences that may originate from an unclear meaning of the terms used within a community other than a technical−scientific one. This is particularly true if we want to establish fair and effective communication among experts, policy-makers, media, and citizens, and avoid misunderstandings. This is why a working group was tasked with the preparation of a glossary with a view to enabling not only experts but also the media and decision-makers to share a common language. The construction of a glossary is a process through which key terms are identified and correlated so that they may become, to the greatest extent possible, a common legacy, by trying to overcome differences of usage, if any, in the various disciplines and sectors. From this standpoint, the glossary proposed in this issue of the journal represents more than just a list of terms with their definitions. Together with the other authors of the glossary, whom I thank for all their painstaking work, I deemed it useful to translate the document into English and publish it in this issue of the journal. I believe that readers will appreciate this effort to develop a common language not only for specialists but also for the layperson. Enjoy your reading!