Final Statement of the Plenary Session on Evolving Concepts of Nature

The Pontifical Academy of Sciences at its Plenary Session in October 2014 discussed nature in its evolutionary essence and the concept of nature which follows from our insights into the mechanisms of how nature functions.

Insights came from a wide range of scientific disciplines, like physics, including astrophysics, biology, biochemistry, environmental sciences, neurosciences, philosophy and mathematics.

In recent times it has become possible, largely by using more powerful research methods, to obtain deeper insights into the laws of nature guiding, on the one hand, the steady but slowly progressing cosmic and biological evolutions, and on the other hand efficient intermolecular reactions to ensure functions serving to each living organism. Therefore the Academy felt that a periodic updating of global scientific knowledge can serve our civilization to adjust its strategies to interact with and also to profit from the rich diversities found in nature.

New findings demonstrate with increasing profundity the richness of nature and the strength of the sciences in analyzing and explaining it. Nature is not static but dynamic. The slow but steady progress of evolution has led over millennia to a rich and sustainable biodiversity of the living world and its habitats.

Nowadays, combined risks come from non-sustainable uses of land, water and energy at the cost of natural habitats and biodiversity. This has reached a point where the healthy living environment for people has been damaged in many parts of the world, particularly with respect to the living conditions of the poor. Furthermore, there have been diverse global impacts on nature and environment, including climate change. Consequences discussed by the Academy are, for instance, food and nutrition deficiencies and health risks, including the excessive spread of

antibiotics.

What is necessary now is not only to protect the environment, but also to work with nature, learn from nature and by this helping humankind to deal with risks. Only by doing so can we enjoy what we consider civilisation for hundreds or thousands of years into the future.

What is sought is a new reconciliation of humankind with nature. In brief, we need to improve our understanding of the functioning of nature and its sustainably in order to make better use of natural processes for the future of human beings.

This is a huge challenge for science and policy, including education.