

1950 to approximately 353 ppmv in 1990. This increase is attributable, in the main, to energy production and use, and to deforestation and changes in land-use practices.

The atmospheric concentration of other 'greenhouse' gases, notably methane, nitrous oxide, and chlorofluorocarbons, is also increasing. More than 20% of the annual release of methane into the atmosphere is contributed by energy-related activities, namely gas drilling, coal mining, and biomass burning. Energy-related activities, for example combustion and biomass burning, also contribute to the nitrous oxide budget.

As a meteorologist, I know that the global climate system is closely associated with the radiative properties of the atmosphere. I also know that the radiative properties of the atmosphere are determined by its composition. Hence, as we modify the composition of the atmosphere, we also modify its radiative properties, and this is most likely to have a significant effect on the global climate system.

There is now consensus among the world's scientists that the significant effect is a change in climate, including global warming. Indeed, the IPCC observed that more than 50% of the radiative forcing of climate is attributable to anthropogenic sources of 'greenhouse' gases from the energy sector.

### *Need for Global Counteraction*

The social, economic, and environmental, impacts of climate change and global warming have been the subject of intense national, regional, and international, debate for the last decade, and I do not need to repeat them here. However, they are so far-reaching that we cannot wait to see them happen before we act. Action, indeed, has been initiated. The WMO Congress, during its tenth session in 1987, called for the establishment of a mechanism which would continuously assess the various aspects of climate change — a decision which led to the joint WMO/UNEP IPCC. Last year, the UN General Assembly established the Intergovernmental Negotiating Committee (INC) for a Framework Convention on Climate Change. Your Conference starting today, and all that you stand for, are part of this concerted action against one of the most serious environmental problems of this century.

Now I believe I have underscored the importance and urgency of adopting a clean energy policy, and hence the significance of your deliberations over the next four days, in which I wish you all success.

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## **Request Statement: Energy and The Biosphere**

I am honoured to have been asked — on this auspicious occasion which we hope will be the first of an ongoing series on its developing theme of the utmost importance — to speak briefly on the challenging topic of energy and The Biosphere. This Biosphere is of course the layer around the Earth in which life occurs naturally, and it is this, in its relative fragility, which is really threatened — rather than the more solid interior of our planet.

Consequently we must surely all agree that The Biosphere has to be brought back to balance — despite the appalling ravages of our energy-intensive modern civilization — if we are to enjoy at all equable continuation of life on Earth. Of this key imperative the world will have to be duly apprised through suitable education and chronic reminders such as the latterly-established Biosphere Day, in the original Declaration of which, as published in the Autumn 1991 issue (vol. 18, p. 199) of *Environmental Conservation*, it is clarified that

'The Biosphere is that favoured layer of our planet's periphery (solid, liquid, and gaseous) in which any form of life exists naturally. It is our sole home and living heritage whose protection should be our first human imperative. Energized in virtual eternity by the Sun, The Biosphere is our only proven life-support — as the world is at last beginning to realize, while concomitantly recognizing the immense implications of this most basic fact. It is also the only proven venue of organized life in our Universe, hence multiplying our gargantuan responsibilities to safeguard it in every possible way.'

Humans being possessed of unique intelligence and hence capability among the world's teeming biota, the basic need is for each and every one of them to be suitably enlightened and duly persuaded to place, in all their thinking and acting, the welfare of The Biosphere before any personal selfish or factional consideration. That is what we have to aim at and strive for if our world is to be saved continuingly for future generations.

May this first World Clean Energy Conference and the Global Energy Charter (*see the following page-and-a-half of Environmental Conservation*) take us already a big step forward towards adequately sustainable development with due realization of Humankind's most urgent need to re-establish the balance of The Biosphere.

NICHOLAS POLUNIN