

Without biodiversity, our survival is at stake!

In conversation with **Dr. Kamaljit (Kamal) Bawa**, PhD, distinguished professor of biology, University of Massachusetts, Boston, and founder-president of the Ashoka Trust for Research in Ecology and the Environment, Bangalore, India, and trustee, S M Sehgal Foundation. Dr. Bawa received the prestigious Linnean Medal for his inspiring work in the field of biodiversity and tropical plants in 2018. In 2012, he also received the first Gunnerus Sustainability Award, the world's major international award for work on sustainability.



1. Your work on biodiversity conservation is immense. How is biodiversity crucial for our planet?

Biodiversity, or the richness of life, is a unique asset of our planet that makes the planet habitable to all creatures including humans. In a sense, biodiversity sustains every human endeavor. Natural ecosystems regulate the supply of water and the air quality, absorbing carbon dioxide that is responsible for global warming, preventing soil erosion and replenishing soils, and providing countless products such as wood, medicines, fodder, etc. The pollinators of our crop plants and the natural enemies of many of our crop pests are important components of wild biodiversity. Nature provides recreational, spiritual, and religious benefits as well. In short, our own well-being is interlinked with the well-being of the natural world.

2. What has inspired your work on biodiversity conservation?

Life itself. For me, the natural world is inspiring, exhilarating, and thought-provoking. There is an abundance of life around us—many different types of plants and animals and many different types of ecosystems such as forests, grasslands, deserts, mangroves, alpine pastures, rivers, lakes, marshes, coastal areas, and deep oceans. A myriad of species interact with each other to form complex food webs. Plants and animals exhibit fascinating behaviors—birds migrate, butterflies are involved in fascinating mimicry complexes, and mammals communicate with each other using an array of sounds—all these species, ecosystems, and interactions constantly arouse a sense of wonder and curiosity.

3. How does climate change correlate with biodiversity?

Global warming, one manifestation of climate change, is caused by an increase in carbon dioxide in the atmosphere. Although emissions from

automobiles and industrial units are largely responsible for an increase in carbon dioxide, global deforestation has also been responsible for these increases. Plants absorb carbon dioxide as they grow. Restoration of forests or biodiversity on degraded lands is a major strategy for many countries, including India, to meet their commitments to reduce emissions (under the Paris Accord).

4. You founded Ashoka Trust for Research in Ecology and the Environment (ATREE) in Bangalore, an environment think tank which is ranked #18 globally and #2 in Asia. Please share how ATREE started and where it is today.

As I recently told a reporter from Mongabay-India: ATREE was set up to undertake interdisciplinary work, solve problems, influence policies, and train the next generation of environmental leaders, initially in biodiversity and later in water and climate change. We originally envisioned a relatively small institution, but we are happy that ATREE has grown to become a premier environmental organization in India that is engaged in applied research, policy analyses, community outreach, and environmental education at all levels. We are particularly proud of our innovative, interdisciplinary doctoral program. ATREE still has a long way to go. We will probably be drawn into more and more work on public health and broader areas of rural development and urbanization. Considering the multitude of interrelated problems, the challenge will be where we can draw the line.

I attribute ATREE's success to five factors: 1. Human resources—our twenty-two faculty members and senior research and management staff are outstanding and capable of undertaking independent work; 2. We generally have a well-articulated strategic plan that guides us in the type of work we undertake; 3. Our governance mechanisms are very sound, with faculty and staff providing inputs to decisions taken by the governing bodies; 4. We have a dynamic interdisciplinary doctoral program with students continually bringing innovative ideas. 5. We have been very fortunate in having support of very understanding organizations, including Sehgal Foundation, who believe in us and who continue to provide us generous and flexible support.

5. Please describe some of your key biodiversity conservation work in India?

My work has largely been focused on two biodiversity hotspots, the Western Ghats and the Eastern Himalayas. In the Western Ghats we examine rates of deforestation, the use of non-timber forest products by local communities, and we apply new tools to monitor biodiversity. We developed an integrated model of conservation that takes into account the use of forest resources by indigenous communities and assigns a key role to multiple stakeholders in conservation. There has been progress in implementation of such a model though not at a rate one would like to see.

In the Eastern Himalayas we have examined the impact of climate change on biodiversity, ecosystem services, and rural livelihoods. We have estimated the effects of temperature and precipitation changes on thirteen ecoregions of the Himalayas and studied local perceptions of climate change and the impacts of such change on the livelihoods of marginalized communities. We are currently focused on three main Sustainable Development Goals (SDGs): conservation of biodiversity (SDG 15), climate action (SDG 13), and poverty alleviation (SDG 1), all within the framework of climate-resilient communities and landscapes sustained by local ecosystem services.

6. What differences do you see in the biodiversity conservation efforts in the West and the Global South?

Institutions in the Western world are strong, democratic governance is well-established, the knowledge base is very good, there are adequate human resources and to some extent, financial resources as well, to address pressing challenges.

7. What do you think should be the next steps in biodiversity conservation?

Similar to ATREE's agenda, we need improvements in policies and institutions that foster democratic governance. We should develop a very comprehensive program on the assessment and monitoring of biodiversity at the national scale that, using digital tools, can engage millions of students and citizens. We should enlarge our knowledge base and strengthen sustainability science that will maintain a steady flow of ecosystem services for human well-being. We must devise ways to curtail biodiversity losses and enhance restoration of biodiversity in degraded areas and almost everywhere. Finally, we must adopt a system of development that recognizes biodiversity as a natural capital that we liquidate at our own peril.

8. What is your message to people as part of the ecosystems we live in?

Life all around us is rich, fascinating, economically precious, and a source of spiritual enrichment. It nourishes, and sustains us. In turn, we must nurture and maintain it. Without biodiversity, our survival is at stake.

(Interview compiled by Pooja O. Murada, director, Communications, S M Sehgal Foundation)