

“I Want to See China and India Shine at the Top of Scientific Kingdom”

— An Interview with Prof. C. N. R. Rao

Prof. C. N. R. Rao is one of the world's most distinguished scientists in solid-state chemistry and materials science. Till now, he has published more than 1,400 papers and 40-odd books and monographs with over 48,000 citations. At the age of 79, he is still enthusiastic about scientific research and produces around 30 papers every year. He is the member of 25 science academies in the world.

Prof. Rao is not only a leading scientist but a pioneer in the scientific cooperation of developing nations. He is former President of TWAS, and has played a major role in boosting the collaboration between Indian and Chinese scientists over the years. On January 23, 2013, he received the CAS Award for International Scientific Cooperation for 2012 from CAS President BAI Chunli in Beijing. He is the first Indian to receive this award. On the morning of January 23, BCAS reporter XIN Ling was lucky to have an interview with Prof. Rao.



BCAS: Nice to meet you in Beijing again Prof. Rao. You'll be given the CAS Prize for International Scientific Cooperation this afternoon. How do you feel to win this award?

Prof. Rao: I'm very delighted and honored. This prize conferred by the Chinese Academy of Sciences is very, very important for international science, and I'm glad to be considered to have contributed to global networking of scientific research. I hold CAS in very high regard, so I think it's really nice to receive this award.

BCAS: You've made outstanding contributions to the scientific cooperation in the developing world. As a founding member and former President of TWAS, you're a driving force behind the Academy's success. How do you see the importance of scientific cooperation between developing nations?

Prof. Rao: I think the future of the world will depend on this. The developing world, particularly Africa, is still in a bad shape. China and India have come up nicely, but many countries in Africa, maybe 50 to 60 countries I think, are still in very bad shape. Their economies are not functioning; their education systems are not functioning... There's no investment in science. The investment in science in some African countries is less than 0.1 percent (of their GDPs)

— there's almost zero money for science. Such differences are very bad for the world, because the peace of the world depends on everybody being OK and happy. So I'm a bit worried. We can't become equal in economy, but we can become equal in education. Everyone can be educated and do well in science — that gives you a good feeling. I've talked about this for a long time, and I hope the gap can be mediated. I've done my best. I still want to do something more for this, and I hope countries like China, India and Brazil can contribute to this.

I think that the most important thing is all the developing countries, particularly the least developed countries, LDCs as they call them, should put some more money in science and education. And the second, we all like to help them a bit more, in training graduate students and so on. We're already doing that, and we have to help them more.

BCAS: You always stress the key role of science in economic and social development. As Chairman of the Scientific Council to Indian Prime Minister for many years, you urged your government to build India into a world leader in science. What accounts for the achievement of this goal? How do you assess China's efforts to develop its science and technology?

Prof. Rao: I think that India has done a good job in

increasing investment in science, education and technology. In the last few years, the Indian government has doubled its investment in science. Though it's not as much as China is spending, we've made a lot of progresses indeed. I think the government should invest more in science and improve innovation a little bit more.

China is doing extremely well. China's investment in science and technology is very good. Now it's becoming No.2 in scientific publications, and will beat America to be No.1 in two years. For China, the progress is not only in quantity but also in quality. I'm still doing research every day so I can tell you this. The quality of papers from China is improving rapidly, especially in the last five years. I believe in the next five or ten years, you'll be as good as anybody.

BCAS: Thanks. For Chinese scientists, innovation is a big problem holding them back from doing good science.

Prof. Rao: But innovation is very difficult. You know, even many countries in Europe are not doing well in innovation, that's true. Innovation requires a climate. Climate means an atmosphere or environment where innovation succeeds. The institutes and individuals must feel they "must innovate". Such climate is coming down in some countries, and coming up in some others.

In China and India, innovation is not at the level required for becoming world leaders. We have some good science and education, but we're a bit imitative. A lot of young people who work with me are not so excited about innovation. I'm an old man, but I'm still enthusiastic about new things. So we have to create a climate for innovation. We must inspire young people, and give them due respect and reward for doing innovative work.

BCAS: China and India are two most important developing countries. As you said, they can become world leaders. But people like to compare them, often in the sense of rivals.

Prof. Rao: That's bad. I don't think that we should be rivals. To be honest, I really feel that if China and India become very close, the world is ours. This century is for Asia. China and India are the most populous countries, and can become powerful ones in the world. I hope this happens. I don't want China and India to compete but cooperate.

I work closely with Chinese scientists. For instance, CAS President Bai Chunli and I have known each other for many years. We are both chemists, and we both do a lot of work in nanoscience. I have high respect for Prof. Bai. He's a very good friend of mine. In 2009, we successfully elected him to be an Honorary Fellow of the Indian Academy of Sciences. Last September at the meeting of TWAS in Tianjin, he was unanimously elected as the new President of TWAS. When I announced his presidentship, I was very happy.

Besides, this year's C. N. R. Rao Chemistry Award will go to a Chinese chemist, ZHAO Dongyuan. He's a very good materials scientist from Fudan University and a member of the Chinese Academy of Sciences. It'll be a nice thing that China recognizes more Indians and India recognizes more Chinese.

BCAS: How do you envision the future of science in India and China?

Prof. Rao: In the next five to ten years China will be one of the most powerful nations in science. I hope that you will manage everything well so that China will shine. India has to do the same thing. India has to invest more in people and institutions. I want to see China and India shine at the top of the scientific kingdom. I do.

On Jan. 23, 2013, Prof. Rao (left) received the 2012 CAS Award for International Scientific Cooperation from CAS President Bai Chunli.

