Dr. Renu Swarup

First woman secretary of DST

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To ensure that our country kept abreast of global developments in the field of biotechnology, the **Department of Biotechnology (DBT)** was set up by our government in 1986. It was around this period, Dr.Renu Swarup, a post-doc from John Innes Centre, England, returned to keep up the commitment and promise she had made to herself and to her parents, that she would serve our country. Dr.S.Ramachandran, Secretary of this department and a great visionary was looking for the right kind of people who have the strength to help our country leap forward and catch-up with the rest of the world! He spotted the fire in her and appointed her as science manager in 1989. Three decades later, when the world was hit by the pandemic, she led our country's scientists to battle this virus successfully.

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In today's global-village, international partnerships are necessary to strengthen both research and translation. In her career spanning over 32 years, Dr.Renu served in various capacities as chairperson of BIRAC, as a member of the empowered group set up by

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the prime minister on management and emergency response to COVID 19, till she retired as the Secretary of DBT. She also served as the first woman secretary of the Department of Science and Technology (DST) of our country. She was responsible for bringing out various policy documents as well for setting up the frameworks on research, technology and product development. She implemented many schemes for imparting necessary education and skills in the field of biotech for forthcoming generations.

Dr Renu credits her parents on how she learnt to handle new environments and responsibilities at every stage. Her father was an officer in defence forces.

He was frequently transferred to different parts of our country and she had to change schools almost ten times. She recalls, "Shifting schools in middle of academic year with hardly three months for final exam, we had to face new set of teachers, classmates and neighbourhood, along with study material to catch up. All these taught me adaptability. Making friends, adjusting to the new environment made me more open-minded. We had challenges set in front of us, we had to adjust to a new system, cope in the given time target and I wanted to do my best. This has helped me till now, to handle surprises that life would throw unexpectedly."

When she was about to start her research work at NDRI lab at Lucknow, her father was posted to Dehradun suddenly. Having used to facing challenges right from the childhood, she looked for new avenues.

So she did her Ph.D. in forest genetics and plant biotechnology in the new place in a new direction that was never heard-of before. This open-mindedness and boldness to face the reality helped her seek new avenues and solutions throughout her career.

Later, with the most prestigious Commonwealth Scholarship, she completed her post-doctorate in applied biology in England. Infrastructure and other facilities one get to see in foreign labs need not intimidate a researcher, she says. "Self-conviction is important. Do not let failures stop you.

I always had the best teachers throughout to guide me. As a student, I used every opportunity to update myself on the research developments worldwide.

There is no substitute for hard work".

As a member of Special Empowered Group on vaccine development and administration, she was at the helm of the government's efforts to boost vaccine development in the country. Mission COVID Suraksha, a ₹900-crore mission helped us develop a number of vaccines in a short time, launched under the **Atmanirbhar Bharat.** "India was one of the first countries which got its roadmap to fight the disease ready along with developed nations such as the US, the UK in the WHO meeting in February 2020.

We identified vaccines as our biggest strength. The government supported this high-risk innovation funding for new vaccine development platforms and that's how the industry got the confidence to work on mRNA and DNA vaccines.

I also strongly believe that we could achieve it because we have been investing in the basic science ecosystem for some years now," says Dr.Renu. **In a short span of time, our country delivered world's first DNA vaccine, first vaccine for children 12 years above, mRNA vaccine, and the first protein based indigenous vaccine Corbevax.** She led the largest National Genomic Surveillance for SARS-COV-2 established by DBT. The largest start-up network was supported for indigenous development of COVID diagnostics, having more than 100 lakhs tests/day production capacity. **To achieve this, she set up the largest bio-pharma ecosystem of clinical trial sites, many immunoassay labs, new animal challenge facilities and National biorepositories were created.**

UNATI Mission Clean Technologies for Swachh Bharat, GARBH-ini and Fortified Wheat Nutritional Improvement through NAMI, Mohali are a few unique programmes that she spearheaded which our future generation would be thankful to her. India is today recognized for more vibrant biotech start-up ecosystem. Dr.Renu Swarup was responsible for creating that kind of supportive system by setting **Biotechnology Industry Research Assistance Council (BIRAC)** in 2012, which now helps bring innovation excellence to the biotech firms and make them globally competitive.

She has been instrumental in the launch of major National Missions like **Genome India** (the first Human Genome cataloguing initiative covering Indians), a special mission on rare and genetic disorders and **IndCEPI** (for developing new vaccines for chikungunya, dengue and pneumococcal disease). Under her leadership, a surveillance system of 30 network labs in the country has been established to generate quality data on antimicrobial resistance for pathogens of public health importance. These efforts have ensured development of high quality affordable products through global partnerships that saves billions of lives and livelihoods of families.

She has not left any stone unturned in this mission to take the benefits of S&T to every possible corner to her best. Dr. Renu Swarup has been actively engaged in providing direction to biotechnology activities in India, through major programmes such as

- World Bank funded National Biopharma Mission
- largest 2G ethanol technology network
- mission innovation on clean energy
- Swachh Bharat – waste to energy network
- Biodiversity characterization of our country's forest cover using Spatial technology
- largest microbial diversity collection
- certification system for tissue culture plants
- BioCARe programme, where more than 500 women scientists have been given re-entry research grants
- Bioeconomy Road Map
- The National Biotech Strategy 2021-2025