

From the IITs to the smallest institutions, almost everyone has innovated in some way to fight against COVID. We need to foster research and use it indigenously, opines **Ramesh Pokhriyal**

C OVID-19 is reshaping our world. At the time of writing this article, more than 5 million people have been affected by this virus.

What makes this crisis so tricky is the fact that people have to do nothing. Social distancing is the new norm. Somehow, a mechanism is needed so that we can create togetherness without actually being together.

Amidst a rising fear that the Coronavirus infection will enter the community transmission stage, the education sector has witnessed a significant disruption globally. Educational institutions across the nation have started several initiatives to confront this challenge. It's encouraging to see that educational institutions across the country are playing a decisive role in the battle against COVID-19. Since the announcement of the first 21-day complete lockdown by our Prime Minister, many universities have shifted to online instruction so that students do not suffer. Responding to such substantial disruption, more and more educational institutions across the country are joining this online initiative — which could well be one of the world's biggest remote learning experiments.

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Ramesh Pokhriyal,
Union HRD Minister

Most research labs have remained active during this time of crisis. We are trying to develop various technologies indigenously, which come at a higher price when imported. These measures will result in strengthening the economy of India.

Focusing on collaborative research, institutions and universities are contributing to the public good. As one of the largest education systems in the world with more than 340 million students and 10 million teachers, we have a huge responsibility to ensure the smooth and safe running of our institutions. The best part is that the entire education sector in the country is working closely together on COVID-19 response efforts. As a part of a joint project, the Chemistry department, along with the Bioscience and Bioengineering departments at **IIT Guwahati**, are developing prototypes of water-proof protective gear that comes with an antiviral coating. Besides, experts have created a 3D-printed prototype of a full-face shield, including head-gear, with a possibility of scaled-up manufacturing.

To meet the enormous demand for sanitisers in the country, **IIT Kharagpur** has developed two different alcohol-based hand sanitisers based on WHO guidelines. Numerous other universities and institutions are preparing sanitisers to meet the huge demand, while researchers at the **Indian Institute of Technology, Kanpur**, have come up with a new ventilator design. This has the potential for large-scale

'Institutes fought COVID head on'

next gen



manufacturing at multiple sites. Scientists at IIT Delhi have developed a method to detect COVID-19, which can significantly reduce the cost of the test, making it affordable for a larger section of people. **IIT Ropar** has developed a design of a Negative Pressure Room (NPR) to prevent the transmission of COVID-19 through the air at isolation wards and testing labs. This technology will help protect our most vulnerable medical staff from infection. As a part of a collaborative initiative, students from prestigious educational institutions — the IITs, NITs and IIMs — have come together and launched an initiative called *Sahyog* to help stranded workers, migrants and the homeless amid the strict measures to restrict movement. This situation prompted the government to vigorously activate *Make in India*. **IISc** in Bengaluru is working on several projects including 3D printed valves for split use of ventilators and recombinant subunit vaccine for SARS-CoV-2.

IIT Palakkad is attempting to make indigenously designed masks and filters. The filters contain layers of non-woven PP (polypropylene) materials and textile material coated with known antiviral nanomaterial. To prevent community spread, surveillance of COVID-19 suspects is essential. It's heartening to note that **IIT Roorkee** has developed a mobile tracking application endowed with state-of-the-art features to locate COVID-19 suspects. **NIT Calicut** has developed a low-cost, non-invasive emergency ventilator with an exhale disinfectant.

I am sure that these initiatives launched by our educational institutions will draw more investments and power the Indian growth story. This research will not only further the manufacturing capabilities of our country but help in creating fertile ground for businesses to thrive in India. I sincerely believe higher education is a catalyst for economic growth, as it ensures the strategically competitive technological advances in addition to skilled human resources. High-level skills and technological advances provide production improvement, thus leading to a flourishing economy. As much as we brace to face the worst, we must encourage the research initiatives of our institutions, which gives us the capability of turning this crisis into an opportunity. It is highly encouraging that almost every week a new solution is being put out by our research institutions in the fight against COVID. The best part is that our start-ups, our students, researchers and faculty are at the forefront with their strategically competitive skills.

Ramesh Pokhriyal 'Nishank' is the Union Minister for Human Resource Development, Government of India



789
As per the UGC, there are 789 universities across India



37k
There are 37,204 colleges across states



74
India has 74 institutes of National Importance



5
There are five institutes under state legislature act

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