2. Institute of Life Sciences,
NALCO Square,
Bhubaneswar-751023

3. National Institute of Immunology,
Aruna Asaf Ali Marg,
New Delhi-110067

4. National Centre for Cell Science,
NCCS Complex,
Ganeshkhind, Pune-411007

5. Institute of Bioresources and Sustainable Development,
Takyelpat, Imphal,
Manipur-795001

6. National Institute for Plant Genome Research,
Aruna Asaf Ali Marg,
New Delhi-110067

7. National Agri-Food Biotechnology Institute,
C-127, Phase-8, Industrial Area,
Mohali-160071, Punjab

(c) Due to non availability of sufficient number of officers of requisite seniority in the administrative cadre in the autonomous institutes, scientists have been working as part time vigilance officer/CVO under intimation to Central Vigilance Commission (CVC).

(d) Currently there is no proposal for change in policy. However, the department will review the situation after consultation with the Directors of the autonomous institutes.

Scientists in research institution and laboratories

2618. DR. T.N. SEEMA: Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) whether the experts have expressed their grave concern over the grim situation of science in the country;

(b) whether there is a notable shortage of qualified scientists for research and development in various research institutes/laboratories under the Ministry;

(c) if so, the details thereof and the reasons therefor;

(d) if not, the details of all major Government institutes/laboratories;

(e) whether there is migration of scientists to private sector; and

(f) if so, the steps taken by Government to retain these qualified scientists in these institutions and stop migration of talent from the country?

THE MINISTER OF SCIENCE AND TECHNOLOGY (SHRI S. JAIPAL REDDY): (a) No, Sir. Performance of our country in science and technology in recent years is impressive and promising. India's position globally in the field of scientific research and development, as measured by the number of research papers published, has improved from 13th position in 1996 to 9th position in 2010 as per the Scopus International database. In 2010 India was ranked at 6th in terms of publications in Nanoscience and Nanotechnology. In case of research in chemistry, India ranks 5th in the world with respect to scientific publications.

(b) and (c) No, Sir. There is no notable shortage of qualified scientists for research and development in various research institutes/laboratories under the Ministry.

(d) The Department of Science and Technology nurtures 21 autonomous institutions and 5 professional bodies. These institutions profile on basic research to technology oriented research in frontier areas of science and engineering. The Department of Biotechnology has 13 autonomous institutes which profile on frontier areas of biotechnology. Under Council of Scientific and Industrial Research there are 37 R&D Institutes engaged in research in areas of Biological Sciences (11), Chemical Sciences (8), Engineering Sciences (11), Physical Sciences (5) and Information Sciences (2). 17 major centre/institutes under Department of Space are engaged in space research and development activities. 12 aided institutions of Department of Atomic Energy carryout high end research in various areas of science and engineering. 52 laboratories under Defence Research and Development Organization are focused on developing technologies required for national security.

(e) and (f) Government is aware of a few cases of migration of scientists from research institutions of the country to private sector. The extent of migration in terms of number of scientists is insignificant. Government has taken a number of steps to provide better scientific environment to retain scientists in these institutions and stop the exodus of talent from the public sector to the private sector. Some of the enabling

mechanisms put in place by the Government to promote R&D in India include: sharing of proceeds with scientists from sponsored projects, consultancy projects and premia and royalty received from the industry; mobility of scientists between national labs, academia and industry; knowledge alliance with private industry to pursue product driven R&D and establishment of incubation centres to nurture start-up companies and enable chances of commercialization; investment of knowledgebase as equity in enterprises and incentives for performing scientists. A Bill for Intellectual Property Management in public funded projects has been formulated to ensure that innovators share royalties from technology transfer and commercialization.

Status of research and development

2619. SHRI C.P. NARAYANAN: Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) the extent to which the country is self sufficient in science and technology sectors like agriculture, drugs, defence, energy, nuclear energy and space travel;

(b) the details of funds allocated for Research and Development (R&D) during the last three years along with the details of their utilisation;

(c) the extent to which capacities of universities and R&D institutions in public sector have been utilised during the above period; and

(d) the number of research projects entrusted to these institutions by Government during the above period and the amount spent thereon?

THE MINISTER OF SCIENCE AND TECHNOLOGY (SHRI S. JAIPAL REDDY): (a) India has demonstrated self-sufficiency in many areas of science and technology in strategic and non-strategic sectors. In sectors like agriculture the country has made significant achievements in increasing yield and production through development of high yielding varieties, appropriate transfer of technology, better farm management practices, increased area under cultivation of hybrids etc. Improved wheat varieties resistant to rust, including race ug99, have been developed and these are spreading fast in the rice-wheat system. Improved varieties of crop plants such as wheat, maize, pearl millet, mustard, chickpea etc., which cover nearly 40% of the cropped area of the country, have impacted most in the improved production and productivity. Through various programmes of the Government, our country has enhanced its capabilities towards development of new drugs in all systems of medicine. Efforts were made to engage enhanced public private partnerships for developing