

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY

RAJYA SABHA
UNSTARRED QUESTION No. 1089
ANSWERED ON 13.02.2025
Climate resilient agriculture systems

1089 Dr. Sikander Kumar:

Will the Minister of Science and Technology be pleased to state:

- (a) whether Government has framed any policy focusing on promoting sustainable bio manufacturing in diverse thematic areas including climate resilient agriculture, supporting economic growth while ensuring environmental sustainability;
- (b) if so, the details thereof;
- (c) the details of challenges associated in bio manufacturing for climate resilience agriculture and steps taken in this regard; and
- (d) whether any initiative has been taken by Government to position India as a global leader in bio-based innovations and set the country towards a sustainable future, a profitable economic milieu while safeguarding environment?

ANSWER

MINISTER OF STATE (INDEPENDENT CHARGE) FOR THE MINISTRY OF SCIENCE
AND TECHNOLOGY & EARTH SCIENCES
(DR. JITENDRA SINGH)

- (a) & (b) Yes Sir, the Department of Biotechnology has formulated the BioE3 (**B**io**E**chnology for **E**conomy, **E**nvironment & **E**mployment) Policy for 'Fostering High Performance

Biomanufacturing’ in the country. The Union Cabinet has approved the BioE3 Policy on 24th August 2024. The BioE3 Policy aims to promote sustainable biomanufacturing by leveraging the regenerative capabilities of the biological systems to develop sustainable solutions for the pressing global challenges. Climate Resilient Agriculture has been identified as one of the thematic areas under the BioE3 Policy.

- (c) The requirement of specialized infrastructure, complex regulatory frameworks and competition of bio-based innovations with the established conventional manufacturing processes are the major challenges associated with biomanufacturing for climate resilient agriculture. Biomanufacturing initiative is poised to address these challenges through setting up of BioEnablers - Bio Artificial Intelligence (AI) hubs, Biofoundries and Biomanufacturing hubs to ensure access to high-end infrastructure, advanced facilities and tools to develop and scale up of bio-based solutions for embedding climate resilience in Agriculture.
- (d) The approval of BioE3 Policy is a significant step towards positioning India as a front-runner in bio-based innovations promoting ‘Green Growth’ while complementing the Governments’ initiatives of ‘Net Zero’ economy and ‘Lifestyle for Environment’. Besides collaborative programs for discovery and innovative research, bridging the gap between ‘lab-to-pilot’ and ‘pre-commercial’ scale manufacturing are the key components under the Biomanufacturing initiative to address national needs and propel India as a global leader in Biotechnology. Setting up of BioEnablers - Bio AI hubs, Biofoundries and Biomanufacturing hubs under the Bio-E3 Policy will facilitate the activities of Start-ups, MSMEs, Industries and research institutions to accelerate research and commercialization thereby promoting bioeconomy, sustainable future and safeguarding environment.
