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climate resilient and energy efficient agriculture

The CREEA Initiative in Kerala: Building Climate Resilience and Energy Efficiency in Agriculture

Enhancing Agricultural Resilience and Energy Efficiency Amid Climate Change

Rising with the Sea and the Tide Regaining resilience of coastal agricultural landscapes

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Vijay Rajmohan is a civil servant and is currently posted as Director in CBDT, Department of Revenue, Ministry of Finance, Government of India. He served earlier in Ministry of Agriculture and Farmers Welfare as Director in charge of Extension, Trade, Drought Management, IT and G20 (Substantive) at different points of time for close to 8 years. He also worked as Joint Director General of Foreign Trade in Ministry of Commerce. He was also the first Director in Food Safety and Standards Authority of India (FSSAI).

Harnessing 'Data' - for a Climate resilient Agriculture

The biggest challenge Indian Agriculture sector faces is the climate change. A Report by Department of Science and Technology, Govt of India points out that Climate is the most important determinant of Crop productivity especially since 2/3rd of the cultivated area in India is rainfed (1). Climate change impacts – erratic rainfall, floods, droughts, hail storms, seawater ingress and the like – reduce predictability in the farm sector. These changes adversely affect Indian agriculture sector and as a result, productivity falls, farmers' livelihoods are endangered and India's food security is at threat. Since India is also a major exporter of agri produce (2), any dent in India's food security would also adversely impact vulnerable populations in Africa and elsewhere thereby creating a global food crisis.This would also imperil India's aspirations to be a developed country by 2047 as it has to feed a nutrition rich diet to its growing and aspiring lower and middle classes, especially children and youth and food diplomacy is vital in securing allies and threatening likely foes. Moreover, demographic dividend that is India's advantage in becoming a Developed Nation and ensure it's strategic atonomy would be neutralized by any disruption in its agriculture sector due to climate change.

Fortunately, India's technological prowess could come to its rescue, if harnessed properly. India has a huge amount of data existing in various silos – ICAR institutes, agricultural universities, state governments and the private sector. If properly stitched, harnessed and utilised, the power of data could transform and uplift India's agriculture sector.

Data, the new fertilizer!

Data plays a crucial role in the agriculture sector. From selecting crops to marketing the produce, farmers need appropriate data, though this is hard to come by. For research institutions as well as private sector institutions, developing climate-resilient crop varieties is one of the foremost goals. Data and technologies can make their jobs easier. Most of the ills faced by farmers today in India can be ascribed to data asymmetry and the absence of data. However public-private collaborations can transform the way farmers access data and make informed choices.

'Digital Agriculture' has the potential to transform the agriculture sector and mitigate the impacts of climate change. It relies on data and a plethora of new and emerging technologies which would function more efficiently with a proper backbone of useful data. Data in the agriculture sector is of two types – one set concerning the farmer and the other regarding land. Data on the farmers is, however, hampered by privacy issues – neither the government nor the private sector can access farmers' personal data without his/her consent. But data on the farmland has been gathered for a long time through several means including using satellites in the sky. Such data is being collected by

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Jayaraman C PhD
Chief Editor

Climate Resilience and Energy Efficiency: Farming a Sustainable Future

The spectre of climate change casts a long shadow over our world, and agriculture, the bedrock of human civilisation, stands on the brink of transformation. The articles in this issue paint a vivid picture of the challenges and opportunities that lie ahead for this vital sector.

Kerala, a state renowned for its lush greenery and agricultural richness, is grappling with the twin threats of climate change and development. The CREEA Initiative, as highlighted by Sridhar Radhakrishnan, is a beacon of hope, emphasising the urgent need for climate-resilient and energy-efficient agricultural practices. The state's vulnerability to extreme weather events, particularly in the hilly regions, underlines the imperative of adopting sustainable farming methods.

Usha Soolapani's contribution sheds light on the wider implications of climate change on agriculture in Kerala. With nearly 60% of the state's land under cultivation and supporting a significant proportion of the population, the sector's resilience is paramount. The case study by Dr Nameer and his team from Kerala Agricultural University is a testament to the potential of carbon-negative agriculture, offering a blueprint for sustainable farming practices.

Dr Sreeja's exploration of coastal agricultural landscapes is particularly poignant. The rising sea levels and their attendant threats pose an existential crisis for millions of coastal dwellers. Resilient agricultural systems, as she argues, are not merely about food production but also about safeguarding livelihoods and communities.

Rajesh Krishnan's personal journey underlines the importance of combining traditional knowledge with modern technology in building resilient farming communities. His experience in Wayanad highlights the role of data-driven decision-making in adapting to changing climatic conditions.

The issue also delves into the energy dimension of agriculture. With the sector consuming a significant portion of global energy, the need for efficiency is undeniable. The analysis on solar energy and emerging technologies like battery energy storage systems (BESS) and green hydrogen presents a promising roadmap for the future.

As we navigate the complexities of climate change, it is evident that agriculture will play a pivotal role in mitigating its impacts and ensuring food security. The articles in this issue offer valuable insights and inspire hope. By embracing innovation, fostering collaboration, and investing in sustainable practices, we can build a future where agriculture thrives in harmony with the environment.

Let us commit to supporting initiatives like CREEA and empowering farmers with the knowledge and tools they need to adapt and succeed. The future of our planet depends on it.

Dr C Jayaraman