

Need for climate-smart agriculture in India

The two most important issues facing humanity in the 21st century are climate change and food insecurity. Some of the ongoing effects of climate change, such as heat waves, flash floods, droughts, and cyclones, are negatively influencing lives and livelihoods. The world's southern continents are reportedly experiencing severe drought due to climate change, which negatively impacts agricultural production and farmers' livelihoods. Both population expansion and dietary changes are contributing to an increase in the demand for food. The effects of the environment on farm output only add to the difficulty. As a result of climate change, traditional farming practices are becoming less productive. Climate change is increasing the dangers faced by farmers, prompting them to re-evaluate their practices. Farmers are taking a variety of adaptation measures to reduce the negative effects of climate change. The need for a holistic strategy is driven by climate change's dual challenges of adaptation and mitigation, and the pressing need for agricultural production to rise by 60% by 2050 in order to fulfill food demand.

A viable option

As a viable option, climate-smart agriculture (CSA) provides a holistic framework. The Food and Agriculture Organization said in 2019: "Climate-smart agriculture is an approach for transforming food and agriculture systems to support sustainable development and safeguard food security under climate change. CSA comprises three pillars or objectives: (1) sustainably increase agricultural productivity and incomes; (2) adapt and build resilience to climate change; and (3) reduce/remove GHG (greenhouse gases) emissions, where possible." Dimensions of climate-smart practices include water-smart, weather-smart, energy-smart, and carbon-smart practices. They improve productivity, deal with land degradation, and improve soil health.

The future impacts of climate change on agricultural productivity could be substantial. In India, crop yield decline owing to climate change (between 2010 and 2039) could be as high as 9%. In order to combat climate change and sustainably boost agricultural output and revenue, a radical reform of the agriculture industry is required. The United Nations' Sustainable Development Goals aim to end hunger and enhance environmental management; CSA's foundation is in achieving these goals through sustainable agriculture and rural development. The National Action Plan on Climate Change emphasises the role of



Ishwar Choudhary

is pursuing Ph.D. in Economics in the Department of Economics and Finance at BITS Pilani, Rajasthan



Balakrushna Padhi

is Assistant Professor, Department of Economics and Finance at BITS Pilani, Rajasthan. Views are personal

Climate-smart agriculture has the potential to assure food security, empower farmers, and protect our delicate ecosystems

climate-resilient agriculture in India's adaptation measures. Programmes such as the Soil Health Card Scheme use precision nutrient management to optimise agricultural methods. The concept of precision farming is still somewhat novel in India. While certain private companies offer services, the scope of these initiatives is extremely limited.

Community-supported efforts

CSA's value in minimising and adjusting to the effects of climate change on agriculture is becoming widely acknowledged on a global scale. There has been a worldwide uptick in community-supported agriculture efforts. These efforts are made in an attempt to create agricultural systems that are both resilient and environmentally friendly. Improvements in agroforestry, sustainable water management, and precision agriculture are all concrete examples of CSA ideas in action, and they are not limited by any one country. CSA promotes crop diversification, increases water efficiency, and integrates drought-resistant crop types, all of which help lessen the disruptive effects of climate change. The importance of CSA lies in its ability to increase agricultural output while maintaining ecological stability. This correlation is not only a desired consequence but rather essential for long-term food security and sustainable resource usage in a warming planet.

By reducing exposure to climate-related dangers and shocks, CSA increases resilience in the face of longer-term stressors like shorter seasons and erratic weather patterns. In addition to these benefits, a significant outcome of CSA implementation is the increasing economic autonomy of farmers. CSA causes a dramatic change in farming communities' economic and social structure by distributing information about and providing access to climate-resilient methods. As the climate changes, farmers, significantly those already disadvantaged, can gain enormously from adopting climate-smart techniques. The increasing popularity of CSA is a promising indicator for the future of biodiversity conservation. CSA's ecosystem-based approach and different crop varieties help cropland and wild regions coexist together. This collaborative effort helps to safeguard native plant species, keep pollinator populations stable, and mitigate the effects of habitat degradation.

The problem may also work in reverse directions. The agricultural sector also produces a large amount of GHGs. The sector's share in GHG's emissions in 2018 was 17%. Therefore, CSA implementation is crucial for lowering GHG emissions and protecting biodiversity.

Furthermore, it aids in enhancing farmland carbon storage. The Paris Agreement goal of limiting global warming by reducing GHG emissions is tied directly to the success of the CSA. Agroforestry and carbon sequestration are two examples of CSA measures that could help India meet its international obligations and contribute to the global fight against climate change. Rather than being a rigid set of rules, CSA is more of a flexible concept with a wide range of potential applications. However, the most challenging aspect of dealing with global warming is to create localised responses. Therefore, investing in capacity-building programmes and providing practical CSA tools and knowledge is essential.

Production resources are diminishing, and demand for agricultural products is increasing; thus, there is a need for resource-efficient farming to cope with climate variability. CSA substantially contributes to climate adaptation, mitigation, and food security. Studies from different climate-smart techniques used in India show that they improve agricultural production, make agriculture sustainable and reliable, and reduce GHG emissions. One study from the northwest Indo-Gangetic Plain for wheat production shows that site-specific no-tillage is advantageous for fertilizer management and can boost yield, nutrient usage efficiency, and profitability while lowering GHG emissions.

A unique juncture

The majority of Indian farmers are small or marginal. Therefore, CSA can play a significant role in helping them increase their profits. The intersection of climate vulnerability and agricultural importance places India at a unique juncture where CSA adoption is not merely desirable but essential. The National Adaptation Fund for Climate Change, National Innovation on Climate Resilient Agriculture, Soil Health Mission, Pradhan Mantri Krishi Sinchayee Yojana, Paramparagat Krishi Vikas Yojana, Biotech-KISAN, and Climate Smart Village are a few examples of government initiatives in India focusing on CSA. Various public and private sector entities such as farmer-producer organisations and NGOs are also working towards the adoption of CSA.

CSA has the potential to assure food security, empower farmers, and protect our delicate ecosystems by merging innovation, resilience, and sustainability. In the face of a changing climate, the path of CSA stands out as a source of inspiration and transformation for a world working to ensure a sustainable future.

EVASTALIN

The inhumane decision to expel Afghan refugees

While international attention is focused on Israel's merciless bombing of Gaza and its ground attacks, Pakistan's decision to expel 1.5 million undocumented Afghan refugees in the beginning of winter is escaping sufficient global scrutiny. The Israeli action, since October 7, has resulted in thousands of deaths, including of infants, and widespread destruction of territory. Even hospitals have not been spared. It may therefore be considered inapt to mention the Pakistani decision along with the Israeli action. The intention is not to compare them but to emphasise that the expulsion of Afghan refugees to an uncertain future is unjustified and will result in deprivation, if not starvation, for many of them. Apart from being inhumane, this expulsion is also contrary to the ties of brotherhood that Pakistan claims binds the Afghans with its own people.

Significantly, some of the refugees who have been pushed out have lived all their lives in Pakistan. Many built businesses, obviously with Pakistani official complicity, which they are being compelled to sell at dirt cheap prices. This is because Pakistan is permitting departing refugees to take only ₹50,000 with them. The decision is also particularly harsh for girls who have been studying in Pakistani schools and colleges and will now have to abandon their studies in Afghanistan. More than two-thirds of the Afghanistan population is facing a humanitarian crisis. Hence, for the Taliban authorities, making arrangements for their incoming compatriots from Pakistan is, as Caroline Gluck of the United Nations Refugee Agency reported on November 17, "a daunting task".

Pakistan's frustration with Afghan Taliban

While Pakistan is supporting its move as being diplomatically, politically and morally correct, the fact is that this decision has been taken on account of the country's frustration with the Afghan Taliban administration's refusal to rein in the Tehreek-e-Taliban-e-Pakistan (TTP). Caretaker Pakistani Prime Minister Anwaar ul Haq Kakar told the media on November 8 in Islamabad,



Vivek Katju

is a retired diplomat

What Pakistan does not understand is that the Afghan Taliban in power in Kabul, even if they do not have international recognition, will not do its bidding

"After the establishment of the Interim Afghan government in Afghanistan in August 2021, we had a strong hope...[that] strict action would be taken against Pakistan-opposing groups, especially the TTP, and they would not be allowed to use Afghan soil against Pakistan". That hope was unrealistic even though the Pakistani establishment nurtured the Afghan Taliban for over two decades after they were ousted from Kabul in November 2001. Apart from ideological and ethnic affinities between the Afghan Taliban and the TTP, the former wish to retain the latter as a card against Pakistan. All through history, the Afghans have been shrewd practitioners of realpolitik. The Afghan Taliban are no different.

The Afghan Taliban's approach towards the TTP has enabled the Pakistani group to increase its attacks on the Pakistani security forces in recent months. Pakistan claims that terrorist acts in the country have increased by 60% since the Afghan Taliban came to power and that 2,267 Pakistanis have lost their lives in TTP attacks. This is enraging the army. The Pakistani generals feel that the Afghan Taliban would not be able to carry out their successful struggle against the U.S. and its NATO allies in Afghanistan but for the safe havens that Pakistan gave them, and so they should be thankful to Pakistan. What the generals should know is that there is no gratitude in global affairs. Indeed, far from appreciation for Pakistan, Afghans feel that the country has used them for its own interests. Pakistan's decision on the refugees will only consolidate that sentiment. The Afghan Taliban would not be immune from this widespread emotion against Pakistan.

Speaking at the Margalla Dialogue in Islamabad on November 15, Mr. Kakar hoped that Afghanistan's governance challenges and the recent transformations would get settled because that would be "pivotal" for Pakistan's connectivity with Central Asia. Defending Pakistan's decision on refugees at the Dialogue, Dawn newspaper reported Mr. Kakar as saying "issues would settle the day Kabul would have a legitimate government". The interim Afghan government spokesman rejected this contention.

He stressed that the "incumbent" system is legitimate and enjoyed popular support.

This is not the first time that Mr. Kakar has said that the Taliban government is not "legitimate". He said so during a TV interview two months ago. Indeed, he went further to state that the idea of a Westphalian state could not be applied to Afghanistan because its governance structure had "multiple layers". He also expressed doubts about the efficacy of a "central authority". These comments were made in the context of Pakistani allegations of "terrorist incursions" into Pakistani territory from Afghanistan. He refused to directly respond to a question on whether Pakistan was willing to enter Afghan territory to combat terrorism. However, he said that Pakistan will fulfil its responsibility to defend its borders "at any cost". Unfortunately, it is the hapless Afghan refugees who are paying the "cost".

A mutual negativity

Pakistan and Afghanistan's mutual negativity greatly accelerated once the Soviet-supported communist government came to power in 1978. Pakistan became the base camp for the Afghan jihad, which was supported by the U.S., Saudi Arabia, and China. The withdrawal of the Soviets in 1989 and the fall of Mohammad Najibullah in 1992 saw Pakistan intervening in Afghan affairs to form a pro-Pakistan Mujahideen government. Its efforts were repudiated by the Mujahideen groups, and the Pakistani favourite, Gulbuddin Hekmatyar, failed to deliver. Pakistan then turned to the Taliban which had emerged in 1994. It helped the Taliban gain control of almost all of the country. After the Taliban were ousted from the country in the wake of 9/11, Pakistan ensured that the Taliban insurgency was successful.

What Pakistan does not understand is that the Afghan Taliban in power in Kabul, even if they do not have international recognition, will not do its bidding. This includes approaches towards India. Clearly, the refugee expulsion is to create fissures among the Taliban, who are Pashtun. That would not be easy, for there is deep resentment among Afghan Pashtuns against Pakistan.

EVA STALIN