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India's Global Leadership in Sustainable Agriculture: G20 Initiatives and Future Prospects

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Introduction:

The Indian government has actively engaged in G20 discussions and initiatives to address sustainability challenges in agriculture, food security, and climate change. The focus has been on benefiting small and marginal farmers through various welfare schemes. In G20 meetings, India has emphasized the importance of building friendly and sustainable agriculture and food systems. To enhance farmers' resilience to crises, the government is committed to improving their access to inputs, technology, and markets. Efforts include organizing small and marginal farmers into groups, promoting agri-startups, and investing in agricultural infrastructure. India has also implemented the world's largest crop insurance program and undertaken activities to facilitate the digitization of agriculture. The commitment to the economic well-being of farmers is evident through these initiatives, ensuring that they are better equipped to face current and future challenges. The emphasis on collaborative efforts, technology adoption, and inclusive policies underscores India's dedication to sustainable agricultural practices on the global stage. The Innovation in Adaptive Agriculture Project has been launched nationally to foster climate-smart farming practices, focusing on developing climate-resilient crop varieties. India is particularly advocating for millet cultivation due to its tolerance to harsh climatic conditions and nutritional value. The United Nations has declared 2023 as the International Year of Millets based on India's proposal, recognizing the need for promoting food diversity. To sustainably enhance agricultural production, minimize food losses, and fortify global food supply chains, concerted efforts are required. The declaration emphasizes the importance of providing adequate income to small and marginal farmers. Collaboration is urged to leverage traditional knowledge and share emerging technologies and best practices. It is crucial to cultivate an enabling policy environment to transform the

agricultural ecosystem, promoting openness, efficiency, and transparency. India, having transitioned from a food grains importer to a significant player in agricultural trade, plays a vital role in ensuring the availability and affordability of food for all. The collective commitment is necessary to meet the challenges and opportunities in the evolving landscape of global agriculture.

Due to recent developments, India has swiftly transformed into a net exporter of agricultural products, maintaining a trade surplus in this sector for several years. Despite logistical challenges posed by the COVID-19 pandemic, agricultural and allied product exports from India surged by an impressive 18% during the 2020-21 financial years. Notably, during the global pandemic, India achieved an all-time high in agricultural exports for the fiscal year 2021-22, reaching USD 50.21 billion. India's agriculture and food supply systems have not only achieved self-reliance but have also made exceptional contributions globally, particularly during the pandemic. India, embracing the philosophy of "Vasudhaiva Kutumbakam" or "One Earth ·One Family · One Future", extended substantial help to other nations by exporting food grains in times of crisis. In response to the challenges faced during the pandemic, India intensified efforts to mitigate losses. To ensure better livelihoods for small and marginal farmers, who play a crucial role in global food production, there is a need to enhance nutrition-sensitive social security schemes, introduce new technologies, and promote efficient fertilizer use. Sustainable food and nutrition security programs should be implemented to strengthen global food systems. The overarching goal is to ensure food security, availability, and affordability worldwide. It is imperative that agricultural trade provides equitable opportunities for all nations, especially for developing countries and the numerous small and marginal farmers. The collaborative effort towards these objectives is crucial for fostering a more inclusive and sustainable global agricultural landscape. In India, the adoption of mobile technologies in agriculture and the food sector, along with the widespread use of remote-sensing services and distributed computing, is bringing about positive reforms that benefit small landholders. These technologies enable the collation of data on trade, market dynamics, finance, and training for farmers, particularly smallholders. The ongoing 'Fourth Industrial Revolution' is expected to yield favorable outcomes for the agriculture sector. There is significant potential for enhancing the income of farming households through the adoption of technologies such as block chain, artificial intelligence, machine learning, drones, and the

Internet of Things. India is actively pursuing digital transformation to empower farmers with better decision-making abilities, enabling them to manage risks and uncertainties more effectively. The country is working towards establishing a Digital Agriculture Ecosystem with the goal of increasing farmers' income and improving their standard of living through more effective scheme implementation. India, with its historical emphasis on living in harmony with nature, has initiated 'Mission Life' to highlight individual practices in the global climate action narrative. This mission aims to leverage social networks and create a global community of 'Pro-Planet People' (P3) who share a commitment to an eco-friendly lifestyle. Through the P3 community, Mission Life seeks to build and reinforce a self-reliant ecosystem that is environmentally friendly. This initiative aligns with India's advocacy for sustainable practices and the promotion of a harmonious coexistence with nature.

India's Initiatives in Sustainable Agriculture:

➢ **Digital Agriculture and Precision Farming:** India has been increasingly adopting digital technologies and precision farming techniques. In 2023, there could be further initiatives to enhance the use of technology for efficient resource management, crop monitoring, and data-driven decision-making in agriculture.

➢ **Water Management:** Given the importance of water in agriculture and the challenges posed by climate change, initiatives to improve water use efficiency and sustainable water management practices may continue or be further strengthened.

- ➤ **Soil Health Management:** Soil health is crucial for sustainable agriculture. India might continue to promote soil health management through programs like the Soil Health Card Scheme, with a focus on reducing reliance on chemical inputs.

- ➤ **Organic Farming:** The push towards organic farming may continue, with the government promoting organic practices and certification. This aligns with the global trend of increasing demand for organic and sustainable agricultural products.

- ➤ **Climate-Resilient Crops:** In response to the challenges posed by climate change, there may be increased emphasis on the development and adoption of climate-resilient crops. Research and initiatives focused on crops that can withstand changing climatic conditions might be prioritized.

- ➤ **Promotion of Sustainable Practices:** India might continue to encourage sustainable agricultural practices, including agroforestry, integrated pest management, and conservation agriculture. These practices aim to balance the need for increased production with environmental sustainability.

- ➤ **Inclusive Agricultural Policies:** Initiatives that support smallholder farmers, women in agriculture, and marginalized communities may be emphasized to promote inclusive growth in the agricultural sector.

- ➤ **International Collaboration:** India may engage in collaborative efforts with other nations, international organizations, and forums such as the G20 to address global challenges in sustainable agriculture, sharing experiences and best practices.

Future Prospects:

- ➤ **Global Agricultural Leadership:** India, being one of the world's largest agricultural economies, has the potential to emerge as a key player in shaping global agricultural policies within the G20. The country's experiences, challenges, and successes in agriculture can contribute significantly to international discussions.

- ➤ **Sustainable Agriculture Practices:** India might continue to advocate for and implement sustainable agricultural practices within the G20 framework. This could include efforts to improve soil health, enhance water use efficiency, and promote climate-smart agriculture.

➢ **Digital Transformation:** India's advancements in digital agriculture and the use of technology in farming practices may be highlighted within the G20. The country could contribute to discussions on how technology can improve productivity, efficiency, and sustainability in agriculture globally.

➢ **Climate Resilience:** As climate change continues to impact agriculture, India might collaborate with other G20 nations on strategies for developing and adopting climate-resilient crops and practices. This includes sharing knowledge on how to mitigate the impact of climate change on food production.

➢ **Trade and Market Access:** India's role in global trade and its significance in food production could lead to discussions within the G20 on trade policies, market access, and reducing barriers to agricultural trade. This could be particularly important in ensuring food security and addressing challenges in global supply chains.

➢ **Inclusive Agricultural Growth:** Given India's diverse agricultural landscape and the presence of smallholder farmers, discussions within the G20 may include strategies for promoting inclusive agricultural growth. This involves policies that support small farmers, enhance rural livelihoods, and address issues of equity in the agricultural sector.

➢ **Research and Innovation:** India may emphasize the importance of research and innovation in agriculture, especially in the development of new technologies and crop varieties. Collaborative research initiatives within the G20 could be crucial for addressing global agricultural challenges.

➢ **Food Security:** India's experiences in managing food security for a large and diverse population may contribute to discussions on ensuring global food security. This involves addressing issues of access, affordability, and availability of food on a global scale.

Conclusion:

G-20 countries need to pay attention to the various areas of sustainable systems. We have to use emerging digital tools to make farming easier in G20 countries and around the world. We should use technologies and enable the small and marginal farmers, especially farmers from the developing countries, to participate in the global supply chains. Efforts should also be made to integrate the formal scientific knowledge and solutions built on indigenous

knowledge systems, so that the rural populations are protected against risks due to climate change and sustainable incomes can be generated, thereby reducing poverty at the family level and ensuring there is no hunger anywhere. At present most of the development taking place in India is reflected in the agenda of the Sustainable Development Goals. India is working towards fulfilling its global commitments by implementing the localization of SDGs.

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