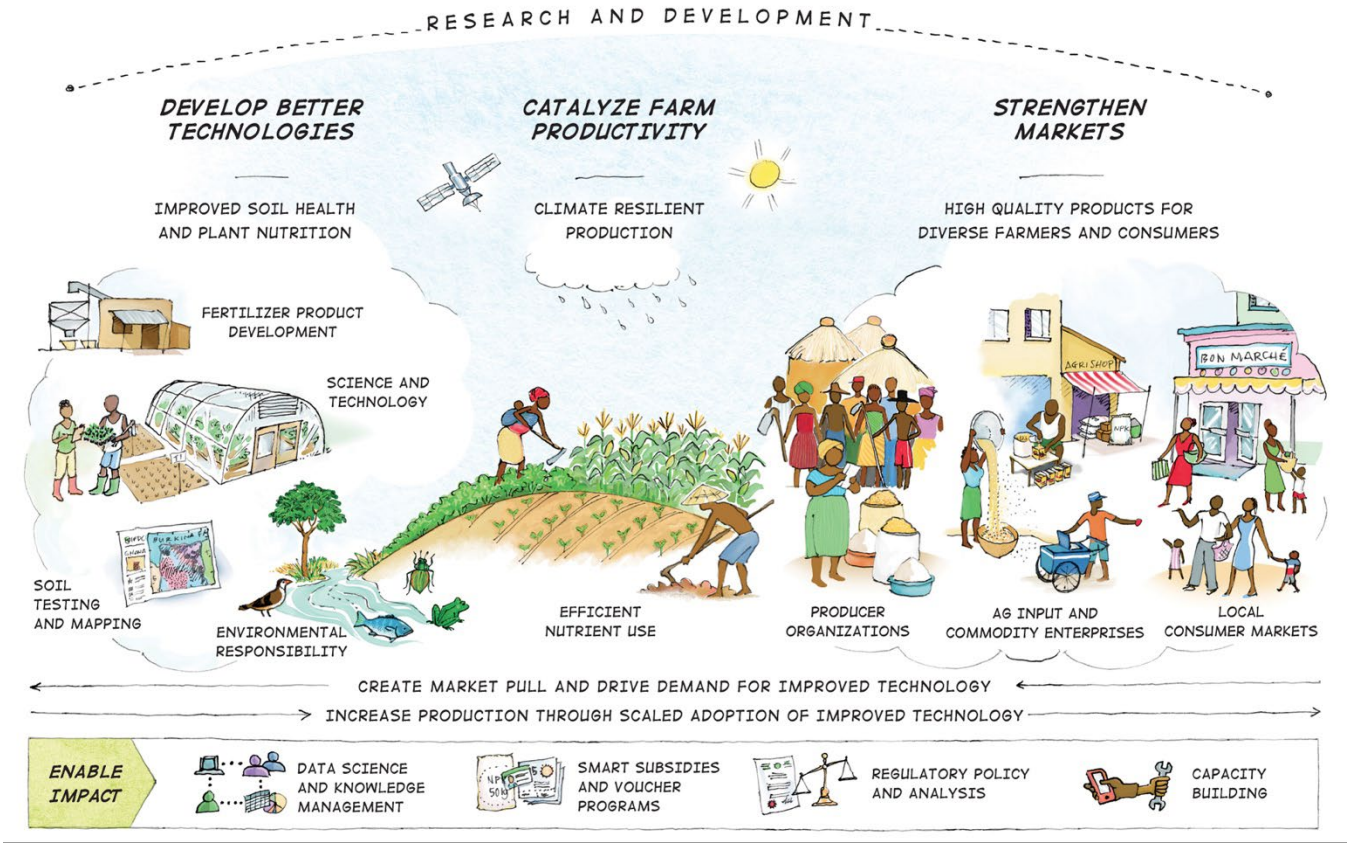
# IFDC Asia

***Market Systems for Agribusiness • Resilience, Climate Adaptation, and Mitigation • Last-Mile Input Delivery • Scaling Technologies • Soil Fertility Management • Seed and Fertilizer Sector Development • Enabling Environment • Collaborating, Learning, and Adapting***

Founded in 1974, the International Fertilizer Development Center (IFDC) is a non-profit public international organization that combines science-backed innovations with policy-enabling and market systems-based approaches. IFDC has been working to support food security and the economic development of smallholder farmers in Asia since 1977, serving an area with vast agricultural potential that also faces major infrastructure, climate, and agronomic challenges. From the inception of its first project in Bangladesh, IFDC's agricultural development efforts have spanned the entire continent, reaching a total of 30 Asian nations. IFDC's work in Asia seeks innovative ways to develop sustainable agricultural production systems by adopting a holistic approach throughout the entire value chain involving firms, traders, and farmers. This includes developing and testing efficient nutrient sources and management technologies at the farm level, strengthening agri-entrepreneurship, and influencing policy reforms through evidence-based economic analysis.



In an area where climate change effects are unmistakably visible, IFDC's research in Asia is dedicated to enhancing fertilizer efficiency, soil health, and environmental sustainability. Through adoption of climate-smart agricultural technologies, such as fertilizer deep placement (FDP), mechanization, and the development of innovative fertilizers, including slow- and controlled-release fertilizers, farmers are increasing their income and mitigating agriculture's environmental footprint. Furthermore, IFDC is actively empowering national agricultural research and extension systems, the private sector, and other stakeholders with knowledge of innovative fertilizer molecules, mechanized fertilizer management, and protocols for greenhouse gas (GHG) measurements, facilitating broader adoption of these technologies for improved farmer income, sustained productivity, and better soil and environmental health. This multifaceted approach encompasses pioneering research on various fertilizer technologies, including climate-smart and nano-fertilizers, alongside efforts to increase fertilizer use efficiency and transition to incentive-based policies. Additionally, IFDC is spearheading the establishment of a fertilizer innovation center, fostering innovative agribusiness models, and developing input-output markets, all aimed at supporting sustainable agricultural production systems across the region.

## Recent Key Work in Asia

**Feed the Future Bangladesh Climate-Smart Agriculture (CSA) Activity**

*2023-2025 – $9 million, U.S. Agency for International Development (USAID)*

Starting in April 2023, the CSA Activity aims to enhance sustainable productivity and crop diversity among smallholder farmers in Bangladesh, fostering a resilient and inclusive food and agriculture production system. Through climate-smart agriculture, it targets improved food security, poverty reduction, and enhanced resilience to climate-related challenges. Emphasizing social inclusion, the project promotes women's participation in agricultural development and ensures their equitable access to benefits. Working closely with the Bangladesh Ministry of Agriculture and in consortium with Action for Enterprise, the CSA Activity focuses on increasing the availability of climate-resilient crop varieties, strengthening seed systems, improving market delivery of agro-inputs, and promoting the adoption of climate-smart agriculture technologies by smallholder farmers.

**Accelerating Farm Incomes (AFI): Building Sustainable Soil Health, Markets, and Productivity in Telangana State – India**

*2019-2024 – $2.55 million, Walmart Foundation*

AFI disseminated improved agricultural technologies to rural and peri-urban farmers through capacity building and micro-enterprise development, fostering partnerships with farmers, private sector agents, and input and output buyers. This initiative aimed to raise awareness and knowledge among farmers on enhancing crop productivity and income through improved practices. This project engaged champion farmers, reaching 40,000 beneficiaries directly. Across 298 villages, 667 champions were trained, each supporting at least 50 fellow farmers. By May 2023, champions gathered data from over 40,000 farmers, digitizing 12,638 records and promoting 122 village-level aggregators. This approach facilitated 22 new agro-input shops and incubated 870 businesses while also aiding 30 farmer producer organizations (FPOs) in market transactions through surplus aggregation and training 16,000 farmers to adopt scientific storage and trading practices.

**Assessment of State Fertilizer Scenario and Promoting Efficient Nutrient Management (ASPEN) – India**

*2022-2023 – $675,000, ARIAS-Government of Assam, World Bank*

Supported by the World Bank Group, the project, in collaboration with the Government of Assam and ARIAS Society, aimed to enhance the efficiency and transparency of the fertilizer sector, improve nutrient use efficiency in rice, vegetable, and mustard cropping systems, and mechanize fertilizer deep placement in the state. IFDC conducted a comprehensive fertilizer sector assessment survey involving 231 stakeholders, resulting in

recommendations to the state government on fertilizer methodologies, policies, testing facilities, and extension services. Notably, the project facilitated the indigenous development of a briquetting machine and FDP machinery, successfully demonstrated in rice, mustard, and vegetable fields. The adoption of mechanized FDP has gained momentum nationwide, with the potential to reduce the amount of fertilizer needed by 25%, increase productivity by 20%, double the nutrient use efficiency, reduce the environmental footprint by 60%, and provide an alternative source of income to farmers through carbon farming.

**Sustainable Nutrient Management in Rice-Pulse-Vegetable Cropping Systems for Improved Farm Income, Food, and Environmental Security in Odisha (SNM-Odisha) – India**

*2023-2025 – $445,000, Rashtriya Krishi Vikas Yojana (RKVY), Government of Odisha*

Supported by RKVY in Odisha State, the project was launched as a key initiative to double fertilizer use efficiency through FDP in various cropping systems. It focuses on assessing and promoting new scientific information and adoption of innovative technologies, such as multi-nutrient customized fertilizers, application methods (FDP), and conservation and precision agricultural practices toward improving nutrient use efficiency, enhancing soil health, and reducing GHG emissions. It also focuses on conducting strategic research on single-operation mechanized seeding-and-balanced fertilization machines for direct-seeded rice pulses and rice-vegetable systems.

**Feed the Future Nepal Seed and Fertilizer Project (NSAF)**

*2016-2021 – $1.1 million, USAID*

IFDC, as a sub-grantee to the International Maize and Wheat Improvement Center (CIMMYT), focused on developing site- and crop-specific fertilizer recommendations and scaling integrated soil fertility management (ISFM) practices through a market systems approach to enhance fertilizer distribution efficiency, public policy, and extension services. The project bolstered productive and profitable agricultural systems, expanded market access, and fostered employment and entrepreneurship, benefiting over 120,000 households across 66,000 hectares. Additionally, 61 firms received technical assistance, accessing over $6.6 million in agricultural financing. IFDC also expanded FDP operations in Nepal and evaluated slow-release fertilizers, such as polymer-coated urea and neem-coated urea. Furthermore, it tested new fertilizer product protocols involving major and micronutrients in partnership with local and international research entities. IFDC was pivotal in reinstating the Fertilizer Association of Nepal, with support from the Ministry of Agricultural Development.

**Dry Zone and Uplands Agro-Input and Farm Services Project – Myanmar**

*2015-2020 – $6.1 million, Livelihoods and Food Security Trust Fund*

This project supported Myanmar's agro-input sector through an integrated approach focused on strengthening agricultural input and service provider (ISP) networks to improve smallholder farmer incomes and productivity through capacity building, quality inputs, and the means to reduce vulnerability to crop stress. At the onset, 92% of ISPs had limited knowledge of agro-inputs and lacked planning and confidence to engage better with farmers. After the intervention, 82% of farmers revealed that ISPs offered improved farm advisory and other services. By 2018, over 200 Myanmar Department of Agriculture extension workers had been supported through 355 trainings. Crop productivity and profit margins increased for over 25,000 farmers and 55 ISPs through the introduction of new products and services and enhanced network linkages. In 2020, COVID-19 disrupted the project, but ISPs continued to remotely gather data, prepare business development proposals, and provide agricultural advisory support, gradually building systems that are more resilient to climate and market shocks. A total of 42,551 stakeholders directly benefited from the project.

**Fertilizer Sector Improvement (FSI+) – Myanmar**

*2014-2019 – $9.5 million, USAID*

FSI+ promoted balanced fertilization with FDP as well as the use of good quality seed and better water management practices. In addition, it strengthened the capacity of fertilizer retailers to improve their business management and provide advisory services to farmers. The project contributed to building a strong and resilient food and agriculture system that has had a transformational effect on people's lives. It achieved that by improving incomes equitably and by enhancing food security for small-scale farmers. The FSI+ project trained over 13,000 farmers; reached another 5,000 farmers through field days and organized visits to model farms; encouraged trained farmers to share information with their neighbors, an estimated 2,500 of whom adopted improved technologies; and trained 346 agro-input retailers, who in turn educated and encouraged over 50,000 farmer customers to adopt improved technologies.

**Accelerating Vegetable Productivity Improvement (AVPI) Project – Bangladesh**

*2013-2018 – $1.1 million, Walmart Foundation*

Implemented in 10 districts in southwestern Bangladesh, AVPI worked with women vegetable and fruit famers to improve the use of FDP and protected seedling cultivation with water-saving irrigation, along with other associated good agricultural practices. Through a grant from the Accelerating Agriculture Activity Improvement (AAPI) project to carry forward support to female vegetable farmers, the project collaborated with the Government of Bangladesh's Department of Agricultural Extension and agro-input dealers to promote FDP and seed/crop cultivation, water-saving trickle irrigation, and poly-net houses. The project surveyed market hubs and educated producers on evolving vegetable and fruit market standards. As a result, over 37,800 female farmers directly benefited from project interventions, with over 40,000 female farmers applying new good agricultural practices and 25,000 farmers utilizing FDP. Additionally, a total of 18 fertilizer briquetting machines were sold to female entrepreneurs, and vegetable and fruit production increased by 148% across the project's targeted districts.

**Accelerating Agriculture Productivity Improvement (AAPI) Project – Bangladesh**

*2010-2016 – $31.9 million, USAID*

The AAPI project emphasized technology diffusion and the development of lasting support systems for rural farmers. Technologies promoted included FDP and alternate wetting and drying (AWD) water management. The project met or exceeded all targets assigned for the extensive range and scope of activities, including more than 28,000 training programs for 1.1 million farmers, field days for 75,000 farmers, training events for 15,600 fertilizer dealers and retailers, and stakeholder workshops for 13,770 participants. As a result of project interventions, over 2 million farmers are now applying FDP, with an adoption rate of 50%. Over 7,800 public and private sector officials were trained on FDP and good agricultural practices, while over 1 million farmers, 33% of whom were women, received training on urea and NPK briquettes for rice and vegetable crops.