

Rural Development and Food Security Forum 2019

28–30 October 2019, ADB headquarters

ADB



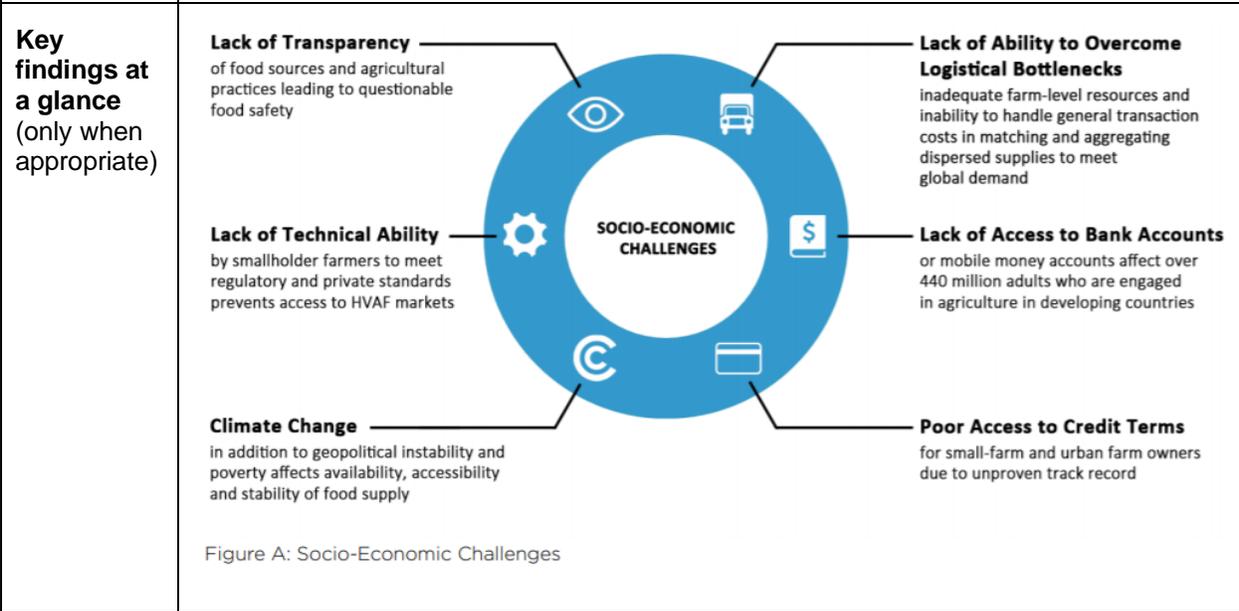
Technology/Project Description Summary

Technology and Innovation Marketplace

<p>Expert (50 words for each bio)</p>	<ul style="list-style-type: none"> Provide the brief bio of the expert. The institution that holds the copyright of the original content may be listed along with the expert. Please provide a brief introduction of the institution. Include a link to the expert's LinkedIn page if available. Other social media links and contact information are welcome. <div style="text-align: center;">  <p>Jim Harkness Former President, Institute of Agricultural and Trade Policy</p> <p>Jim Harkness was the President of the Institute for Agriculture and Trade Policy from 2006-2013. He previously served as Executive Director of the World Wildlife Fund in People's Republic of China from 1999–2005, working on rural development, natural resource management and environment. Harkness also worked as the Ford Foundation's Environment and Development Program Officer for the People's Republic of China, and served as an adviser for the World Bank and the United Nations Food and Agriculture Organization. Harkness received his graduate degree in Development Sociology from Cornell University.</p> <p>Follow Jim Harkness on </p> </div>
<p>Photo(s) of Expert(s)</p>	<p>Provide high-quality photos of the expert(s) in separate JPEG files.</p>
<p>Contact Details of the Expert(s)</p>	<p>Provide the name of the expert(s), position title(s), name of organization, and email address(es)</p>
<p>Title (15 words)</p>	<p>Examples:</p> <p>How Farm-IoT integrated with Supply Chain can connect farmers to global market Four Ways Smart Technology Can Help Farmers How Risk Financing Can Help Farmers Cope with Disasters</p>
<p>Keywords</p>	<p>Provide at least three keywords related to your technology/project</p> <p>Farming Blockchain Food</p>

<p>Short one-sentence blurb (Up to 150 characters, including spaces)</p>	<p>CrowdfarmX is the world’s first cooperative farming platform on the blockchain. It is a solution developed to overcome the world’s food crisis by enabling small holder farmers to have direct access to the best-practice farming protocols, monitoring and control of their farms to maximize food safety and production. CrowdfarmX platform also connects farmers to the global demand.</p>
<p>Overview (150 words)</p>	<p>By 2050, the world population is expected to exceed 9 billion with 66% living in urban cities (“World’s Population Increasingly Urban”, 2014). As a result, several experts have estimated that global food supply must increase by at least 60% to meet global food demand (Arsenault, 2016). However, Erdman (2018) and Holt-Giménez et al. (2012) have argued that despite 11% of the world’s population facing global hunger, there is in fact, more than enough food to feed the global populace (Food and Agriculture Organization, 2017). Thus, these two statements converge on a more poignant issue: smallholder farms¹ lack convenient access and integration into markets (Arias, Hallam, Krivonos, & Morrison, 2013). More than 80% of the global food supply is provided by about 570 million smallholder farms (Graeub et al., 2015); however, many of these small family farms are unable to participate in the world food economy directly as they lack the knowledge and funds to optimally produce safe food², which fundamentally results in poor access to suitable markets for their produce. This inherent mismatch of supply (from the farmers) and demand (from the consumer markets) is a reason why small-scale farmers are usually trapped in a vicious cycle of poverty, through a systemic cut-off from potential buyers. Hence, despite increasing consumer and market demand for higher safety and quality produce, smallholder farmers are unable to leverage on market opportunities and generally suffer from lower economic returns. Unable to reinvest in sustainable and safe farming practices, they remain entrenched in a cyclical loop which further alienates them from market access. Coupled with the expected increase in world population, a detachment between small-scale food providers and direct consumers raises the urgency for a digitally connected, decentralized, scalable, and safe farming solution to be found. Moreover, the traditional agribusiness financing model is inefficient and slow to address this gap due to perceived high risks where most of the farmers are small stakeholders. Out-grower programs developed by large agri corporations have also not gained significant traction as they are not trusted by small farmer communities (Mercy et al., 2016).</p>
<p>Summary— Main argument(s) and supporting argument(s) (800 words)</p>	<p>In order to tackle the aforementioned challenges, Netatech has been working for over a decade to develop a cooperative platform for farmers. This platform will enable farms of all sizes to have direct access to the best-practice farming protocols, monitoring and control of their farms to maximize food safety and production. Farmers will be able to receive reliable, up-to-date and contextually relevant information in a practical format. This platform is called CrowdFarmX, the world’s first cooperative farming platform on the blockchain. The CrowdFarmX platform will provide farmers with financial, trading and proprietary industry knowledge — to empower them with the capacity to produce high yielding safe food and ensure food security. This revolutionary platform seeks to form the base of a decentralized and self-sufficient community of farmers and agronomists⁴, powered by Internet of Things (IoT) technology and Smart Food</p>

Contracts on the blockchain — which aims to ensure stable and secure access to a demand and distribution network. Transactions will be made possible within the platform itself, through the integrated online marketplace, which will also facilitate other unprecedented functions such as crowdsourcing, crowdfunding of farm infrastructure, peer sharing of agronomic information such as pest control with minimal use of pesticides and innovative methods of improving quality and yields. Smart Food Contracts that are executed on the CrowdFarmX platform will run on the hyperledger blockchain due to higher throughput compared to existing public blockchain technology. The CrowdFarmX platform will potentially enable primary produce farmers to participate in aggregated contract farming, where farm produce will be tokenized via Smart Food Contracts and contracted by buyers. The advantage to farmers is assurance of produce up-take in future dates. As for buyers, elimination of intermediaries cuts out unnecessary middleman costs, which mean that lowered costs of production may be translated to lower procurement prices.



Photos
(only when appropriate)



Figure B: CrowdFarmX Platform Overview

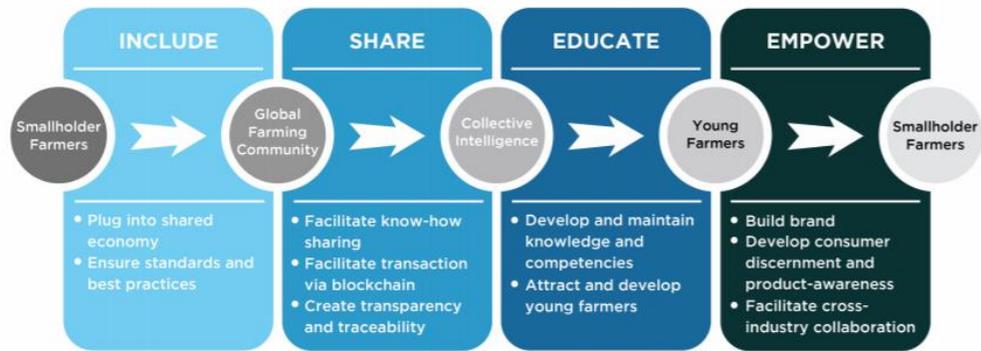


Figure C: Proposed Onboarding Strategy

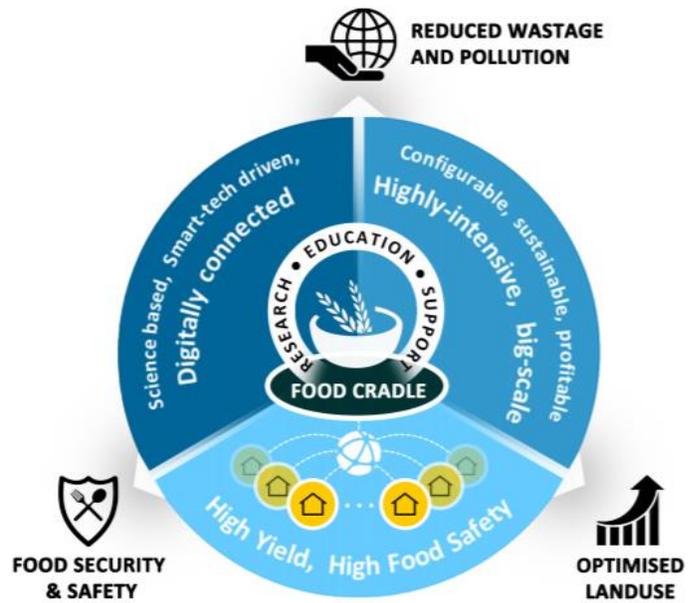


Figure D: The CrowdFarmX Food Cradle

Resources

Provide links to additional online resources (i.e., articles, reports, videos, etc.) for further reference

Link to ADB Agriculture and Natural Resources Subsectors

Which subsector does this article primarily focus on? Please select (✓) more than one but not more than three subsectors.			
	Agricultural drainage		Livestock
	Agricultural policy, institutional and capacity development		Rural flood protection
✓	Agricultural production		Rural market infrastructure
	Agriculture research and application		Rural sanitation
	Agro-industry, marketing and trade		Rural solid waste management
	Fishery		Rural water policy, institutional and capacity development
	Forestry		Rural water supply services
	Irrigation		Water-based natural resources management
	Land-based natural resources management		

Link to ADB Sectors and Themes

Which sector does this article primarily address? Please select (✓) more than one but not more than three sectors.			
✓	Agriculture and natural resources		Health
	Capacity development		Industry and trade
	Climate change		Information and communications technology
	Economics		Poverty
	Education		Private sector development
	Energy		Regional cooperation and integration
	Environment		Social development and protection
	Finance sector development		Transport
	Gender		Urban development
	Governance and public sector management		Water

Link to Sustainable Development Goals

Choose which Sustainable Development Goal (SDGs) is most relevant to this article. Please select (✓) up to 3 SDGs only.			
	Goal 1: No Poverty		Goal 10: Reduced Inequalities
	Goal 2: Zero Hunger	✓	Goal 11: Sustainable Cities and Communities
	Goal 3: Good Health and Well-being	✓	Goal 12: Responsible Consumption and Production
	Goal 4: Quality Education		Goal 13: Climate Action
	Goal 5: Gender Equality		Goal 14: Life Below Water
	Goal 6: Clean Water and Sanitation		Goal 15: Life on Land
	Goal 7: Affordable and Clean Energy		Goal 16: Peace, Justice and Strong Institutions
✓	Goal 8: Decent Work and Economic Growth		Goal 17: Partnerships for the Goals
	Goal 9: Industry, Innovation and Infrastructure		