Event Report

The Digital Ecosystem Opportunity for Indian Agriculture - Making the Right Choices

IT for Change, SEWA Cooperative Federation, and Vrutti

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EVENT REPORT

The Digital Ecosystem Opportunity for Indian Agriculture

- Making the Right Choices

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Conference Concept Note

As part of the project, 'Re-wiring India's Digitalising Economy for Women's Rights and Well-being', supported by the European Commission and Friedrich-Ebert-Stiftung, IT for Change (ITfC), in partnership with SEWA Cooperative Federation (SEWA) and Vrutti Livelihood Impact Partners (Vrutti), organized a policy roundtable on 24 August 2022 in New Delhi to explore emerging intersections between digitalization and agriculture in India.

In recent years, policymakers, agriculturists, and the wider community of development practitioners have recognized the transformative role that digital technologies can play in addressing the productivity crisis in Indian agriculture. In its current configuration, approaches to digitalization are largely app-centric, where innovation is driven by a handful of Agri Big Tech companies in silos. There is an urgent need to adopt a digital ecosystem approach that accounts for a farmer-centric vision of value creation, developed in collaboration with workers, farmers, and producers.

Against this backdrop, ITfC, SEWA, and Vrutti organized this policy roundtable to facilitate dialogue and discussion between scholar-practitioners, open-source technologists, and policymakers to explore ongoing and emerging digitalization trends in the agriculture sector, and potential technological pathways for enhancing farm livelihoods.

The roundtable was structured in a way to enable the greatest participation across four sessions. The roundtable witnessed the presence of 36 in-person participants, with two participants joining remotely.

Conference Summary

The roundtable started with a welcome note delivered by **Anita Gurumurthy, Executive Director and Senior Fellow, IT for Change.** She opened the discussion by elucidating on the rapid innovations taking place along the frontiers of agri-tech, and the need to make choices that relocate value and benefits to farmers in the margins. Gurumurthy highlighted the uneven nature of technology-driven developments across the agricultural value chain, calling attention to recent research indicating that between 2019 and 2021, 81% of investments in agri-tech went to downstream services of consumption and retail linkages, and only 3.5% went into upstream services, which include pre-production and input-related support to farmers.

While there are many known, and perhaps, many more unknown emerging technologies that will transform the future of agriculture, this roundtable aimed to probe, understand, and explore one important question: what kind of technological pathways can support and strengthen agricultural livelihoods? In other words, how do we drive innovation that primarily assists the livelihood of the farmer and her sustainable present?

Echoing these sentiments strongly, in his welcome address, **Balakrishnan, Chief Executive Officer, Vrutti**, emphasized the importance of technological developments that benefit the last-mile farmers. He cautioned the participants about an increasing digital divide and the pressing need to not only empower small and marginal farmers with information about agricultural data and digitalization, but to create avenues that enable a farmer/producer-driven process of digital ecosystem co-creation to take place.

One such avenue of digital inclusion is through cooperatives and collectives. **Mirai Chatterjee, Chairperson, Gujarat Womens' SEWA Cooperative Federation**, talked about how cooperatives have historically enjoyed the trust and participation of local communities, and hence can play an important role in bridging both the digital and gender divide. Digitalization and collectivization can play a pivotal role in the push for social protection as well, highlighted Chatterjee.

In the last opening address, **Smita Singh, Senior Project Manager, Delegation of the European Union to India**, expressed her appreciation for the work being done by ITfC, SEWA, and Vrutti under the

'Re-wiring India's Digitalising Economy for Women's Rights and Well-being' project and brought up linkages to the many related and complementary work areas that the European Union (EU) has planned to engage in through 2022 to 2027, where women's digital education and empowerment are embedded into project designs and execution plans.

Round 1. Farmer-centric Digitalization of Agricultural Value Chains: A Policy Overview

Moderated by **Parminder Jeet Singh, Executive Director and Senior Fellow, IT for Change,** the first session focused on the policy scenario and imperatives of farmer-centric digitalization of agricultural value chains. This session saw presentations by **Rajeev Chawla, Strategic Advisor and Chief Knowledge Officer, Ministry of Agriculture and Farmers Welfare, Government of India**; and **Ganesh Gopal, Lead – Entrepreneurship Development, International Cooperative Alliance Asia and Pacific.**

Setting the context for the session, Singh pointed to two policymaking imperatives; first, that policymaking is built on existing practices that support and stabilize them, and second, the vision society has of what should be opposed and what should be supported. While policymaking in the digital sector is unfolding in front of us, it is important to understand that a policy vision cannot be formulated in a vacuum and with just a singular imperative.

> *"While the economics are important in terms of productivity and income, the rural life, the farmer's life must be kept at the center."*
>
> Parminder Jeet Singh, IT for Change

Chawla, joining us virtually, spoke about the prethought and design principles behind AgriStack, a proposed government-backed agricultural data exchange which brings together farmer-specific information (such as land and revenue records) and other agricultural data (meteorological, soil, hydrology, etc.) within one data stack.

AgriStack is a set of databases/protocols that will have three building blocks: (i) database of farmers – who, where the land is, what crops are grown, weather conditions, soil type, nearest marketplace, government benefits, and more; (ii) georeferenced plot details; and (iii) crop details, including crops grown in the country in real-time.The farmers' database will not only include those who own land but also landless farmers, cultivators, animal husbandry, and fisheries.

> *"We must ask what the private sector can give back to AgriStack in return for the data shared."*
>
> Rajeev Chawla, Ministry of Agriculture and Farmers Welfare, Government of India

Chawla highlighted that this data could be shared with the private sector or the government, subject to the rules of a consent framework. Additionally, a data exchange framework has been proposed for non-personal data sharing. In the discussion round that followed, the participants asked questions revolving around mechanisms through which the government will collect data with the consent of farmers; additionally, inquiries on how will AgriStack substantively include and benefit women farmers, harmonization and integration of AgriStack with other applications and protocols such as e-Shram, ONDC, the role of federations and farmer organizations in mediating consent, and the potential scope for cooperatives acting as data fiduciaries were made.

Taking the stage after Chawla, Gopal talked about the features of the Kerala Food Platform and provided a tech demo of the platform to the group, presented virtually by a member of the Kerala Development and Innovation Strategy Council (K-DISC). Gopal emphasized the fact that the availability of safe food continues to be a significant problem in Kerala and the Kerala Food Platform was conceptualized to primarily address this issue through a farm-to-table model, taking inspiration from a similar digital food platform from Dubai. There are three main ele-

ments to the Kerala Food Platform: (i) a cooperative agri-culture ecosystem management application; (ii) a farmer application; and (iii) an e-commerce mobile application. The application uses QR codes to track-produce, as well as provide details of its origins to the customer. There is an open data policy guiding the design and implementation of the platform to ensure privacy protection measures.

Participants: How will the government collect data with the consent of farmers? How will a seamless process for taking consent be ensured whilst empowering farmers to be able to benefit from the technological infrastructure?

Rajeev Chawla: Implementation will be key. There is no question of handing over data to anyone - whether government or private entities. On a case-to-case basis, if a farmer wants advice or support, she will first have to select which AgriStack service she wants through the platform. The farmer will then consent to data sharing, and from all the datasets collected by AgriStack, only the relevant and related data for which the farmer is seeking support will be shared with the respective third party.

The e-Sahmathi platform will enable the execution of a consent management framework. For personal data sharing, it will allow FPOs to give consent on behalf of the farmers. There is also a concept of open consent where a farmer can give consent for a particular period instead of on a case-by-case basis.

Round 2. Leveraging the Digital Opportunity for Social Enterprises and Cooperatives Working on Farmer Empowerment: Ear to the Ground

The second session, moderated by **Sukhpal Singh, Professor, Indian Institute of Management, Ahmedabad**, saw presentations from Vrutti and SEWA Cooperative Federation on their respective pilot projects on digitalization of women's Farmer Producing Organizations (FPOs) and the creation of a data cooperative for women farmers. The third presentation focused on the agri-tech financing scenario in India and the challenges of collective funding faced by social enterprises and cooperatives.

Prachi Patel, Portfolio Manager; and Prerak Shah, Senior Associate, Catalyst (Vrutti), shared their progress about the pilot project they have initiated at Pudukkottai, Tamil Nadu with women farmers. The three-fold Vrutti model being piloted gives a bundle of digital services to members of FPOs, where Agri Business Accelerators (ABAs) act as a one-stop-shop, mapping information of 200-250 farmers from Business Acceleration Units (BAUs) set up at the block or district level. In the pilot, a series of applications were launched that target to enhance productivity and capacities across the agricultural value chain, including the processes of procurement, facilitating the sale of goods, and market and financial linkages.

Patel emphasized that technology is not the core problem of inequity, and neither is there a difficulty in the creation of an application. The problem lies with ensuring the application develops functions to distribute value to the farmers who use the technology, and not to the investor or the developer of the application. Where most privately-developed agri-tech solutions work well at scale, they do not work for small and marginal farmers – a gap that Vrutti intends to address through its intervention.

Subsequently, **Salonie Muralidhara Hiriyur, Senior Coordinator, SEWA Cooperative Federation,** expanded on the pilot interventions being implemented by SEWA, with the goal of creating a data

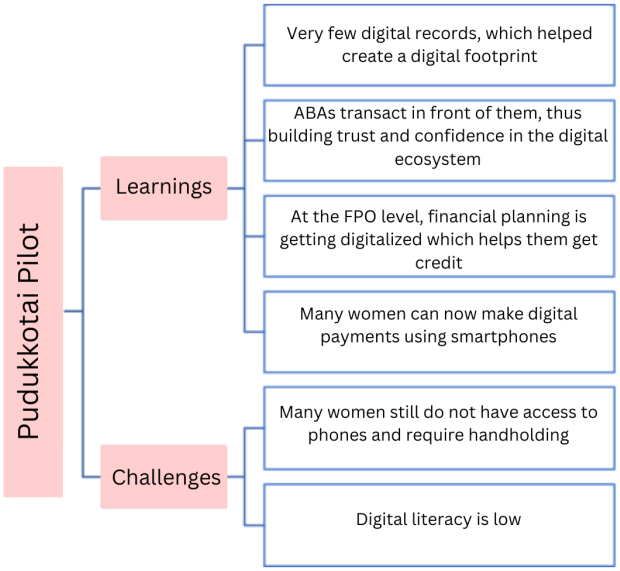

Figure 1: Learnings and challenges from Vrutti's pilot in Pudukkottai

cooperative for their women farmer members. Through the many cooperatives that function within the SEWA ecosystem, the main aim continues to be to fulfil the needs of women farmers, often practicing subsistence agriculture through unique agroecological practices, and hence, most susceptible to the effects of climate change. Through their agricultural cooperative, Megha Mandli, SEWA has been able to identify five key needs of their women farmers: (i) access to markets, both local and national, (ii) access to credits, (iii) access to quality inputs, (iv) access to information and capacity building, and (v) access to social protection. The lived realities of how technology is accessed and used, especially by women farmers, Hiriyur added, needs to be addressed on priority. Linkages between the usage of technology and unlocking its potential as a productive asset need to be created – while women farmers use WhatsApp to talk to their children, do they know they can use the same platform for marketing or other business purposes? Mainstream platforms are designed for those who have continuous personal access to the internet and intricate knowledge of technology – rarely does design thinking take into account users who intermittently access the internet, much like the women farmers from SEWA. Design thinking must realign to the realities of low-tech and hybrid systems. A 'Phygital' approach is the need of the hour in order to facilitate equal and fair digital participation of women small and marginal farmers. For such substantive inclusion to be implemented and imbibed into platform design, it is imperative to harness the power of federations and cooperatives, especially those which are women- and worker-owned, and women- and worker-led.

> *"Without childcare, insurance, and health care, women farmers cannot sustain, therefore, we do need to talk about universal social protection."*
>
> Salonie Muralidhara Hiriyur, SEWA Cooperative Federation

The third presentation for the session was by **Emmanuel Murray, Caspian Impact Investment Adviser Ltd.**, who elaborated on the agri-tech financing scenario in India. Using Big Data analytics, fintech companies now have the potential to deliver banking services to those who are yet to be brought into the fold of formal banking. While government financial policies may be pro-farmer, Murray notes, they remain inconsistent and unpredictable, hindering the growth of post-production finance. Murray delved into the specifics of how fintech captures necessary data for reaching farmers of the edges, and triangulating land, crop, and income level to assess the

credit viability of farmers from specific regions.

The session closed with a few of the participants sharing their brief reflections on the presentations, followed by an open discussion.

Round 3. Data Stacks for the Digital Transformation in Agriculture: Insights from Policy and Practice

Moderated by **Balakrishnan, Chief Executive Officer, Vrutti**, the third session focused on the technical nature of agriculture data stacks and how they must be designed to ensure farmer-centricity. Kickstarting the round, **Vineet Singh, Senior Platform Architect, Digital Green**, elaborated on FarmStack, an agri-data stack designed by DigitalGreen, which has the following three main components: (i) the network orchestrator – run by government or research organizations, (ii) data connectors – similar to peer-to-peer data sharing, which will decide what data should be shared, and (iii) a data wallet – an application through which farmers can control what data they want to share.

Singh illustrated the unique approach adopted by Digital Green while constructing FarmStack: not only does content hosted by the platform take center stage, but equal emphasis is placed on the training government extension workers receive on creating e-community management videos, a key component of FarmStack. The larger vision of FarmStack, therefore, is to give control to farmers and enable them to decide how and what data they want to share.

Taking the conversation on agricultural data stacks forward, **Nandini Chami, Deputy Director and Fellow, IT for Change**, took us through pertinent techno-design directives which we must keep in mind when building and designing a farmer-centric digital ecosystem. The presentation highlighted the two main prerequisites of a farmer-centric techno-design: (i) harm minimization – with respect to data sharing for secondary uses and the need for safeguards against individual and group profiling that can accentuate vulnerabilities, and (ii) equitable benefit sharing – democratizing data value and ensuring that data from data stacks gives value primarily to farmers and not just serve market priorities of profit maximization.

> *"The collective interests of farmers are not reducible to individual farmer consent. Data is relational, therefore, we must rethink how we view and define ownership of data."*
>
> Nandini Chami, IT for Change

Chami spoke in detail about the EU and its proposed Common Data Spaces, and the key takeaways and learnings that can be adopted while establishing data governance policies for AgriStack. Certain principles under the EU Common Data Spaces, such as (i) personal data protection and privacy frameworks for both primary and secondary data sharing use cases; (ii) case-specific clearances from individual users for secondary use; and (iii) conditionality against free-riding are worth noting and adapting to the Indian scenario.

Reflections in Round 3

Niriksha Shetty, Precision Development: People who need advice the most are more likely to be excluded from AgriStack, especially when there are mechanisms for the husband or FPOs to give consent on behalf of (women) farmers.

Ganesh Gopal, International Cooperative Alliance: There are many predatory applications in the fintech space. To address this, we must emphasize the relevance of data cooperatives. Can cooperative institutions act as a bank for the data of the individual, based on the concept of community trust and ownership?

Round 4. Alternative Techno-architecture Imaginaries: Commonizing Platform Data Models

The last session of the event, moderated by **Mirai Chatterjee, Chairperson, Gujarat Womens' SEWA Cooperative Federation**, looked at alternative platform models in the agriculture space. The session saw presentations by **Thampi Koshy, Chief Executive Officer, Open Network for Digital Commerce** (ONDC), and **Prashant Mehra, Co-founder, Platform Commons Foundation** (PCF). Both presentations largely addressed the need for alternative protocols and platforms in order to address the monopolization of the platform economy by Big Tech, and how both the ONDC and the Platform Commons can formalize practices of inclusivity and consent-based data sharing, materializing as a valid, scalable alternative to corporate-run platforms and their extractive practices.

Koshy noted that the challenge of Big Tech monopolization of digital commerce is a concern across the world. Only open networks and protocols, he notes, can further inclusive and equitable access and usage of technology.

> *"There is real importance in intermediation; the kind of farmer-led organizations and cooperatives model that social enterprises are working to build have great ability to influence change and create impact. We must also realize that Phygital and low-tech are not necessarily interchangeable – the former is not only out of necessity, but also a choice which allows us to build trust at scale."*
>
> Anita Gurumurthy, IT for Change

Tracing the history of the internet and its subsequent enclosure, Koshy highlighted that when commercial email was first introduced, one had to pay for the service. However, the most popular email protocols of today are open, allowing us to communicate across email service providers. In an era of proprietary e-commerce platforms that offer their own end-to-end services, the creation of the ONDC protocol by the Ministry of Commerce is considered an effective way to create a democratic market space for equal opportunity. ONDC, hence, is an attempt to move from a platform-centric model to a network-centric model, where buyers, sellers, logistic providers, and customers can connect across platforms that are hosted on the ONDC network, with the subsequent "unbundling of services'' allowing consumers to exercise their choice at each point of purchasing goods/services.

> *"We must think of what kind of efficiency we want when we talk about farming. Increasingly, the definition of farmers is narrowing down, while definitions of capable farmers are being created. This is distorted thinking and policy, and it must change."*
>
> Sukhpal Singh, IIM-Ahmedabad

Koshy delineates the three working parts to the ONDC: (i) the network development – these are the digital rails i.e., the grammar and the language itself; a self-mandate of the ONDC group is that it must be easy to access and be used by people who are not digitally aware and active, (ii) ONDC as a network manager, whereby, the process of bringing together people across e-commerce platforms will also create community rules specific to each functionary, and (iii) services for customers – the development of open online dispute resolution and a reputation index, among other things, are key to ensuring free and fair trade that benefits consumers.

Mehra, our last speaker, spoke about Platform Commons, an alternative platform co-founded by him. His goal through Platform Commons was to move farmers from an input-procurement approach of farming to a competence-driven approach.

Mehra delineates the various competencies that the Platform Commons focuses on (i) "core competencies" – pertaining to production and everything production-related, (ii) "potential competencies" – these

include what he considers “low hanging fruit”, such as sorting, packing, grading, and (iii) “advanced competencies” – marketing and marketing-allied services such as design, sales, and branding. According to Mehra, open source and commons platforms allow synchronicity to play out, versus individual agricultural data stacks that function separately.

> *“With UPI, the notion of a public infrastructure has been broken. What it now means is that you bring with it open protocols, and anyone can come in and do what they want. Hence, a lot of these platforms get away with a lot of anti-competitive conduct. "*
>
> Rohin Garg

When asked about the basic rules/principles for inclusion and exclusion in such a system, Mehra mentioned that exclusion should be on the basis of non-monopolization principles imbibed by each party, along with a comprehensive set of ecosystem rules that must be put in place preventing acquisitions of smaller corporations by large tech players. Mehra reiterated that the goal is not to prevent the entry of bigger organizations; in the chance that they do participate in the ecosystem, they must comply with the rules of Platform Commons, which are geared towards protecting worker- and farmer-led innovations.