

ICT in Agriculture Marketing

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“ No country will reap the benefits of the network age by waiting for them to fall out of the sky. Today’s technological transformations hinge on each country’s ability to unleash the creativity of its people, enabling them to understand and master technology, to innovate and to adapt technology to their own needs and opportunities.”

Human Development Report, 2001

The Indian Agricultural Scenario

India has 127 different agro climatic zones, immense biodiversity and natural resources

- India is one of the biggest food grain and oilseed producers in the world
- Small farms produce 41 percent of India’s total grain (49% of rice, 40% of wheat, 29% of coarse cereals and 27% of pulses), and over half of total fruits and vegetables
- Largest producer of milk, tea
- Fruits & Vegetable and Sugar–Second in the world
- Provides Employment to 62.5 percent work force,
- Export Earnings 14.7 Percent
- Contributes 18 Percent to GDP

Agriculture is the largest livelihood provider in rural India. In spite of this, the small farmers gains are not enough compared to the efforts put in and agriculture cost inputs; this can affect the agricultural productivity and food security of the nation. In the agriculture sector, constant application of latest ideas and better technologies is essential to enhance economic well being of the farmer. The bane of Indian agriculture is not lack of technology, R&D efforts; it is inadequacy and inefficiencies in the dissemination of relevant information to the farming sector. So Information and Communication Technology (ICT) in agriculture can act as a driving force in the development process.



Like agriculture, the subject of agricultural marketing is in the concurrent list of the Indian Constitution and is gaining importance. It facilitates marketing decisions, directs the competitive process and simplifies marketing mechanisms. If the marketing systems are to have any meaning for farmers, the information they provide must be accurate, timely and farmers must understand it. Accuracy, Availability, Applicability and Analysis are the four 'A's of marketing information; a farmer may decide how much to produce, when and where to sell and a trader may expand trade. Similarly, a consumer may find out alternative sources of supply.

The Vision 2020 document of the Department of Agriculture and Co-operation envisages that "the tools of ICT will provide networking of Agriculture Sector not only in the country but also globally. The Center and State Government Departments will have reservoir of databases. And it will also "bring farmers, researchers, scientists and administrators together by establishing "**Agriculture Online**" through exchange of ideas and information. There are several Ministries/Departments in Government dealing with Agricultural Marketing. The Government's digital initiatives include Agrisnet, Agris, Agmarknet, Dacnet, Vistarnet, Aphnet, Fishnet, Hortnet Seednet, Ppin, Coopnet, Fertnet, Arisnet, Afpinet, Arinet, Ndmnet, etc, with their independent websites

Table 1. Important Agencies, Models, Initiatives, Projects of the Agricultural Marketing Information Network

Area/State	Agency / Project	Activity Description	Reference Information
India	AGMARKNET	<p>Launched, in March 2000, linking important agricultural produce markets, the State Agriculture Marketing Boards and Directorates. It provides information on agriculture products, their prices, arrivals, availability, trends, analysis, laws, etc. Currently, AGMARKNET Covers 2900 markets all over the country and display of information of 400 commodities on daily basis in ten languages, linking all important APMCs in India</p> <p>Marketing Channel --- PPP initiative Public-Partner-Participation concept</p>	http://agmarknet.nic.in
Directorate of Marketing & Inspection	DMI	It maintains a close liaison between the Central and the State Governments in the implementation of	http://agmarknet.nic.in/

		agricultural marketing policies in the country to safeguard the interests of producer-sellers as well as the consumers.	
State Agricultural Marketing Boards/	SAMB	Gives sustainable development of agriculture that improves the quality of life of the rural population Identifies location of markets for connectivity under the Directorates of Marketing Scheme based on importance of the market in commodity flow patterns	http://agricoop.nic.in/stateagri.htm
Agricultural Produce Market Committees	APMC	Ensures reasonable gain to the farmers by creating environment in markets for fair play of supply and demand forces,provides site for installation of Agmarknet node comprising of Market Committees) spread all over the country	
Himachal Pradesh	DACNET	An e governance initiative executed by the Agricultural Informatics Division, National Informatics Center, Department of Information Technology,	http://dacnet.nic.in/ Email: lpmjk02@hub.nic.in , cipmjk02@jk.nic.in , jpmjk03@hub.nic.in

		<p>Ministry of Information and Communication Technology, Government of India in 2003. It is an agriculture-online central scheme, in which all the 172 directorates integrate Government Functions (G2G), Agri-Business Partners (B2B), Connect Farmers (C2C), Empower Employees, Enhance Government productivity, value and financial services.</p>	
India	Kisan Call Centre	<p>The Department of Agriculture & Cooperation (DAC), Ministry of Agriculture, Govt. of India launched Kisan Call Centers in 2004 in every state to deliver extension services and marketing information. The Queries related to agriculture and allied sectors are addressed through the Kisan Call Centers in the local language by the experts of Agriculture / Horticulture Departments, State Agricultural Universities,</p>	<p>http://agricoop.nic.in/policyIncentives/kisanCallfirst.htm</p>

		ICAR institutions etc..	
India	Krishi Vigyan Kendra Pravara Village IT Project (PRAGATI) Maharashtra	Krishi Vigyan Kendra (KVK) is a project of ICAR for testing and transfer of agricultural technologies to bridge the gap between production and productivity The KVK has excelled in bringing the modern technological packages at the farmers doorstep with the help of various instructional units e.g The PRAGATI project of National Informatics Centre (NIC) – Delhi, Convergent Communications, Pravara Group, Indian Space Research Organization aims to connect a hundred villages in Ahmednagar covering a population of more than 2.5 lakh with a wireless MAN solution (WMAN)	
Twelve villages in Southern India, Chennai	Information Village Research Project village information	MSSRF's "Mission 2007: Every village a knowledge centre" which aims to connect every village through computer by the year 2007.	http://www.mssrf.org/

	shops”	(Empower farming community through Information Villages and knowledge based IT services). It has a network of Village Resource Centers (VRC's)/ Village Knowledge centers (VKC). Most of these centers are located in Pondicherry and Tamil Nadu.	
India	Indian Agri Trade Junction	APEDA, with the funding support of GoI-UNCTAD-DFID has set up a portal named "Indian Agri Trade Junction" as a part of APEDA website	www.apeda.com
India	Agri Watch	The project by Indian Agribusiness Systems Pvt. Ltd. (IASL) 2001 provide valuable analyses to the trade participants to enhance their decision taking abilities in trade and extend e-commerce in agricultural products. Agriwatch brings to you daily online reports from various agriculture markets in India	http://www.agriwatch.com
Kerala State IT Mission	e-Krishi / Agri-	The objective of the project is to familiarize	http://210.212.236.212/akshaya/atglance.htm

	Business centers	farmers and other stakeholders with the basic use of computer and empower the access to innumerable Information and Communication Technology services in marketing. (Akshaya e-Kendra Entrepreneurs).	
North-East India.	e-Arik	The objective of the e-Arik (e-Agriculture) is to provide agricultural extension services to the tribal farmers through ICTs. It also aims to develop farmer-specific and cost-effective agricultural knowledge dissemination system to the tribal farmers It is a joint venture of Central Agricultural University(CAU) Arunachal Pradesh and Department of Scientific and Industrial Research (DSIR) and the project started in 2007	www.earik.in
India	WIPO	The Wireless Internet Post Office creates an entrepreneurial opportunity for Personal Digital Assistant (PDA)	http://genie.iitd.ernet.in/wipo

		owners to become micro-businesses by providing services such as scribing, data collection, crop pricing, and matching buyers with sellers It was implemented by Department of Computer Science and Technology under Asia Pacific Development Programme (APDIP)	
152 villages in over 5 districts of Andhra Pradesh - East Godavari, West Godavari, Guntur, Krishna and Ranga Reddy	Ashwini	Byrraju Foundation, Media Labs Asia, IIT Kanpur, joined to implement the project for rural population for access to agriculture marketing information	http://www.byrraju.foundation.org/ashwini_home.htm www.byrraju.foundation.org
Uttar Pradesh, Haryana and Punjab	TKK	Tata Kisan Kendra is developed by Tata Chemicals Limited (TCL) and has played a pivotal role in giving the rural farmers access to the latest ICT tools, knowledge about modern farming technologies and information for enhanced income.	Email: corporate_communication@tatachemicas.com
Andhra Pradesh	India Rural World	The objective of the project is the creation of a multilingual, multi portal	

		<p>that will enable easy access to information.</p> <p>The project started in 1999 for farmers to buy and sell their harvest to the highest bidder The implementing agency is CoOptions Technologies Limited, Hyderabad</p>	
Tamil Nadu	Muruggappa Groups' EID Parry	<p>The project has been designed in 2002 to address specific needs of the rural farming community to catalyze e-commerce in agricultural and non-farm products Sugar Cane procurement and other knowledge sharing initiatives have been launched from EID Parry's Kiosks.</p>	<p>http://www.eidparry.com/aboutus.asp</p>
<p>TamilNadu (Vellore)</p> <p>TamilNadu (Krishnagiri)</p> <p>Pochampalli</p>		<p>The Safal National Exchange of India Limited (SNX), Bangalore, has promoted online trading in banana and mango through the Agricultural Technology Management Agency (ATMA), traded 9,000 tonnes of mangoes grown in Krishnagiri</p>	<p>http://hindu.com/2008/01/18/stories/2008011859661100.htm</p> <p>http://hindu.com/2007/06/15/stories/2007061551030500.htm</p>

		<p>district in Tamil Nadu, Chittoor district in Andhra Pradesh and in Bangalore</p> <p>The online spot trading introduced by Safal National Exchange for Tothapuri mangoes and launched additional delivery centers in the district for banana, onion, potato and coconut.</p>	
Tamilnadu (Perundurai Taluk)	Now a one-stop shop for farmers' needs	Kongu Engineering College (Information Technology Department) has set up a portal on agriculture-based marketing activities	http://wserver1.nic.in/apic/apic
Punjab	Punjab Mandi Board – Market Intelligence System.	Market Intelligence System is well developed in the State of Punjab. Rates of various items of agricultural produce are broadcasted through Radio, Newspapers, and Television etc. Day to day market rates are disseminated through AGMARKNET	http://mandiboard.nic.in/
Karnataka	Grasso PCO Project	Gramin Sanchar Society through the PCO project to usher in a business	www.grassopotal.com

		process re-engineering in the lives and livelihoods of rural Bengal The Partners are, Govt. of West Bengal, GRASSO and BSNL .The project started in 2003	
Karnataka	Agribiz India	Organic production of agriculture commodities in the state of Karnataka	http://www.agribizindia.co.in
Assam	Asha	Project Asha is designed to provide agri-business services through Community Information Centers It is a joint venture of National Informatics Center (NIC), Oracle, NICNET, Assam State Center, Solution Architect and Network Operation Group (TEAM SANJOG), Dept. of IT - Govt.,	http://www.assamagribusiness.nic.in.
Madhya Pradesh, Haryana, Uttarakhand, Karnataka Andhra Pradesh Uttar Pradesh, Maharashtra, Rajasthan, Kerala and Tamil Nadu,	e-choupals	1. The ITC Company has set up about 6500 e-choupals in 40,000 Indian villages, and is targeting to set up 20,000 e-choupals in one lakh villages by	http://www.itcportal.com/ ruraldevelopment/echoupal/htm

		<p>2010 These e-choupals were initially operated by persons like village panchayat pradhans, village teachers and postmen, who acted as sanchalaks. Now a number of educated farmers also act as sanchalaks.</p> <p>2. Marketing Channel Public-Partner-Participation\concept (PPP)</p>	
Rajasthan Jaipur	Growth Oriented Micro-Enterprise Development Program,	Made agriculture retail out to the fields using mobiles. Focusing the supply chain management and farmers' technical information needs.	
Madhya Pradesh, Haryana, Karnataka Andhra Pradesh Uttar Pradesh, Maharashtra,	i-Shakti	Hindustan Lever Limited (HLL) is another company that has penetrated rural India's market through human networking in 2004. It has launched project i Shakti	http://www.hllshakti.com/sbcms/temp15.asp

Rajasthan, Kerela Tamil Nadu, Gujarat, Orrisa, Punjab, West Bengal, Bihar, Jharkhand		in 2001 and engaged rural poor women (Shakthi Ammas) I – Shakti – an IT based rural information service - purpose is to integrate business interests with national interests.	
Hyderabad	IKisan	Ikisan is a comprehensive Agri Portal addressing the Information, Knowledge and Business requirements of various players in the Agri arena -Farmers, Traders and trade channels etc	http://www.ikisan.com
Agriculture resource center	India agronet	Agriculture resource center provides information on Agri news, Market update, Agriresources, Agritechnology, Agri knowledge ,Agri services etc.	http://www.indiaagronet.com
Agricultural Wholesale Markets on the WiMAX based Internet Hubs;	Digital Mandi	Digital Mandi is an agricultural information portal for the farmers that aims at providing pricing information, higher yields for outputs, The project is developed by Media Lab	www.digitalmandi.net

		Asia, Zonal Coordination Unit-IV ICAR – Kanpur, Shramik Bharti, Wifin Technologies, Food Corporation of India (FCI), IIT Kanpur in 2003	
Maharashtra	Krishiworld	Multilingual Agricultural Portal launched in the 2000	http://www.krishiworld.com
Uttar Pradesh, Haryana and Punjab	Tata Kisan Kendra	TKK is developed by Tata Chemicals Limited (TCL) and has played a pivotal role in giving the rural farmers access to the latest ICT tools, knowledge about modern farming technologies and information for enhanced income.	Email: corporate_communication@tatachemicas.com
Maharashtra	Mahindra Kisan	Farmers can check daily mandi prices, read weather updates, latest crop advisories, and agri related news. Farmers can also read and benefit from the success stories of other fellow farmers.	http://www.mahindrakisanmitra.com
India Maharashtra	MCX	Under CSR initiative MCX with India Posts, Tata Energy Research Institute, M S Swami Nathan Research Foundation and Akshaya centers are developing	MCX Com News, January-March 2008 http://karmayog.org/csrothercompanies/csrothercompanies_9517.htm

		<p>replicable ways for getting markets to the farmers.</p> <p>MCX has an agreement with Indian Society of Agribusiness Professionals (ISAP) to offer training and capacity building for policy makers, farmer leaders, grass root NGOs.</p> <p>MCX has also started disseminating prices in partnership with the Department of Agriculture and Co-operation to farmers.</p> <p>MCX and National Spot Exchange Limited (NSEL), in collaboration with Maharashtra State Agricultural Marketing Board, established Commodity Suchna Kendra at APMC, Vashi in Mumbai.</p> <p>The Gramin Suvidha Kendra (GSK) project at Jalgaon that provides services ranging from price information to query</p>	
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		<p>redressal of agricultural inputs</p> <p>SNX and a joint venture between National Dairy Development Board and Multi-commodity Exchange of India (MCX) conducted on-the-spot electronic trading for mangoes in Krishnagiri and Pochampalli taluks.</p>	
Western part of India (Mainly Gujarat & Maharashtra)	Akashganga	AKASHGANGA is conceived to spread information technology among rural masses particularly among those dealing with selling milk. and local milk cooperative societies	http://www.akashganga.in/
Pune district, Maharashtra	aAQUA	Almost All Questions Answered (aAQUA) is a multilingual online question and answer forum that helps farmers with their agricultural problems The IIT, Bombay has implemented the project in 2003and various partners are Vigyan Ashram, Pabal and Krishi	http://aaqua.persistent.co.in/aaqua/forum/index Email: dean.rnd@iitb.ac.in

		Vigyan Kendra – Baramati,	
India	NCDEX National Commodity & Derivatives Exchange	India's largest and most recognized online commodity trading platform, established in 2003. The exchange was founded ICICI Bank Limited, the National Stock Exchange of India and the National Bank for Agricultural and Rural Development NCDEX currently facilitates trading of Barley, Soy Bean, Refined Soy Bean Oil, Rapeseed-Mustard Seed, Expeller Rapeseed-Mustard Seed Oil, RBD Palmolein, Crude Palm Oil.	http://popularinformation.blogspot.com/2008/08/ncdex-national-commodity-derivatives.htm
India	NSEL	NCDEX Spot Exchange Ltd a public limited company registered on October 18, 2006 is a wholly owned subsidiary of National Commodity & Derivatives Exchange Ltd. The foremost commodity Exchange in India for Agricultural commodities. Deriving strength from its parent, NCDEX Spot proposes to	www.ncdex.com http://popularinformation.blogspot.com/2008/08/ncdex-national-commodity-derivatives.htm

		<p>offer an electronic trading platform for trading in a host of commodities, both agricultural and non-agricultural to various market participants, primary producers including farmers, traders, processors</p> <p>NSEL attempts to remove the middle man</p> <p>They are the first to show up agricultural commodity index in India.</p> <p>India 's first to offer spot trading in sugar in Sangli-district ,</p> <p>Maharashtra in 2007</p>	
<p><i>The Warana Wired Village Project</i> for Kolhapur and Sangli district, Warna Nagar, (70 villages in and around Warna) Maharashtra</p>	<p><i>WWVP</i></p>	<p>Implemented by National Informatics Centre (NIC), Directorate of Information Technology, Government of Maharashtra (GoM) and Warana Sahakari Dudh Utpadan Prakriya Limited (WSDUPL) in 1998 the project aims at giving villagers access to information in local language about crops and agricultural market prices</p>	<p>Email: rjain@mah.nic.in</p>
<p>Satpura Integrated Rural Development</p>	<p>Sirdi</p>	<p>The access of weekly village market</p>	<p>http://www.apdip.net/resources/case/rnd01/view</p>

Institution		information is offered by email,	
Kerala	Kissan Kerala	Karshaka Information Systems Services And Networking of the Department of Agriculture (Kerala) implemented a complete Agri –info system	http://www.kissankerala.net/home.jsp
Karnataka	Krishi Marata Vahini	The Department of Agricultural Marketing has launched the "Krishi Marata Vahini" Web site, which is linked to Agmark Net Web-site	http://maratavahini.kar.nic.in/
Madhya Pradesh	Krishi Vipanan	EKVI project, the e-Agriculture Marketing project of Government Madhya Pradesh, is conceived and executed by Madhya Pradesh Agricultural Marketing Board(Mandi Board) and Madhya Pradesh Agency for Promotion of Information Technology (MAP_IT), EKVI is one of the unique projects implemented as per the	http://iimahd.ernet.in/egov/ifip/dec2006/article1.htm

		Build-Own-Operate Public Private Partnership model can easily be replicated in all states/countries	
New Delhi	Hariyali Kisan Bazaar	The 'Hariyali Bazaar or Hariyali Kisan Bazaar by the DCM Sriram Group initially started off by providing farm-related inputs and services and now introduced the complete shopping basket It has 180 stores across India. The (IT- enabled) centers provide farmers critical data like inputs and access to weather forecasts, market prices and other technical knowledge	http://www.dscl.com/ Business_Agree _HarKisBzr.aspx? PID=27 Email: rajeshgupta@dscl.com

Major Recommendations

- The future lies in rural computing. Using ICTs for timely market and weather information is key to development in the farming sector. We should tailor our rural ICT Policies according to our requirements
- There is a need for Integrated Website for all agencies, of both State and Central Government, involved in Agricultural marketing services using ICT like APEDA, APMCs, CWC, SWCs, CACP, CCI, DMI, FCI, JCI, KVKs, MPEDA, NAFED, TRIFED, NDCDC, NDDDB, NHB, SAMBs etc..
- Establishment of AGMARKNET Nodes at KVKs and Panchayats and computerization of all mandies/APMCs. Wholesale markets should have WiMAX based Internet Hubs.

- ICTs cannot succeed on a stand-alone basis and need to be supplemented by other programmes. e.g. Academic and research data in agriculture marketing needs to be digitalized and it is also necessary to make available the digitalized literature in local languages. Support is also needed to facilitate Cross-flow of information.
- The involvement of a local partner in the delivery of the services will be significant for a disciplined market.
- India needs to develop a structured nationwide common spot exchange.
- Arrangement should be made to introduce electronic scientific grading of agricultural commodities in the markets or for a cluster of markets.
- The small and medium farmers are always lacking in resources. In spite of lowest price paid by wholesalers, most of the small and medium farmers sell their produce to the wholesalers in lieu of receipt of advance borrowing from them. Adequate and timely on-line credit facilities should be made available, at reasonable rates of interest, by the financial institutions so that farmers can come out from the clutch of wholesaler.
- Tele-density in rural areas continues to be low, increase in tele-density as an important component of infrastructure development should be taken up.
- There is need for greater synergy between extension services and market.
- Strengthening of Agriculture Business Process through e-Form, e-Document, Workflow Computing should also be given importance