

Benefits from rural ICT applications in India: Reducing transaction costs and enhancing transparency?

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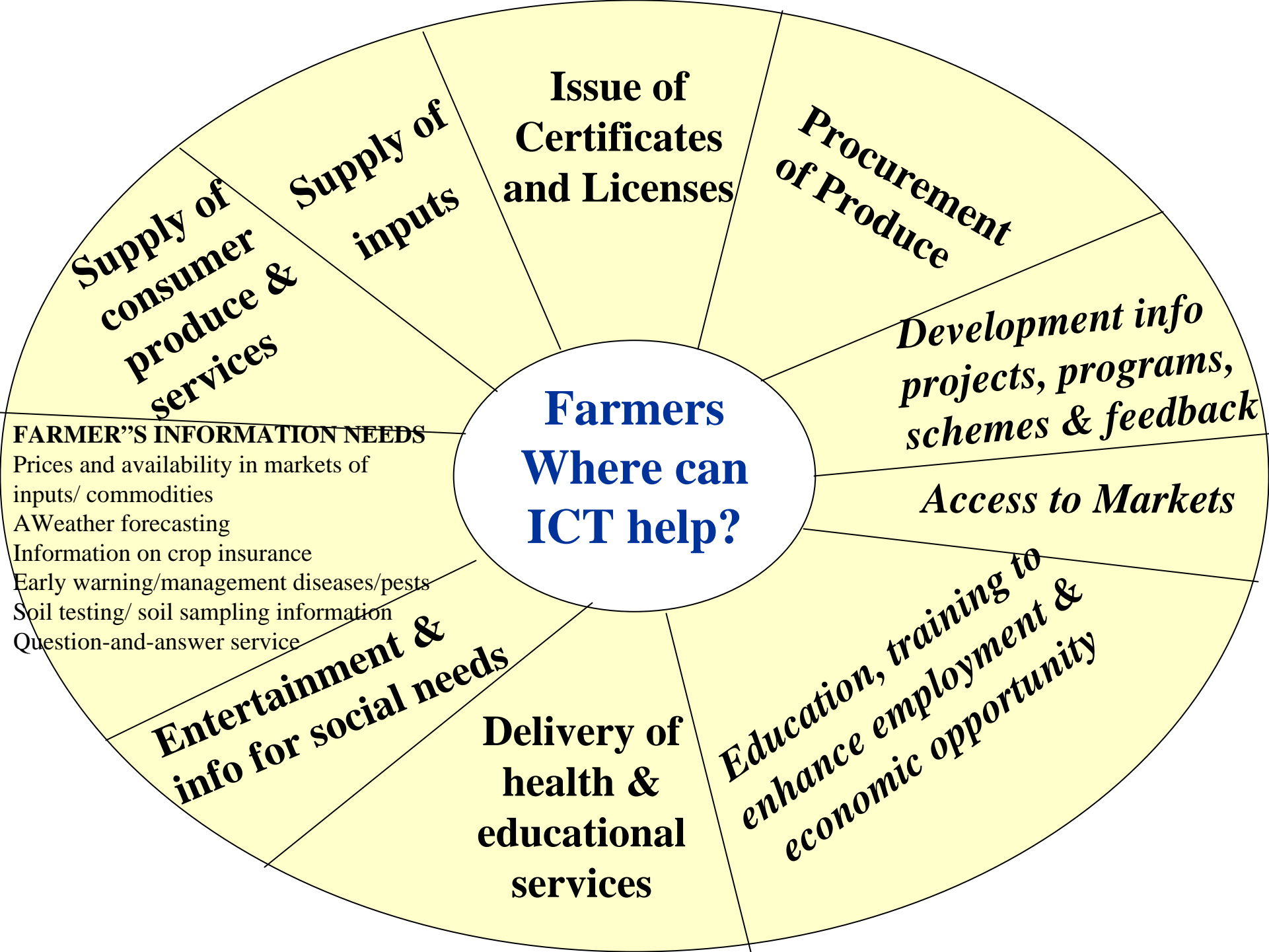
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Presentation Structure

- Nature of benefits
- Examples of ICT initiatives in agriculture
 - Computerization of Mandis (agri-markets)
 - eChaupal-an initiative of a large private firm
 - eSAGU: extension services and knowledge
 - Agri watch Portal-private sector
 - On-line Land records by Karnataka Govt
 - Computerized co-op milk collection centers
- Key lessons from the Indian experience

Benefits: Lower Costs, Added Value and Transparency

- ICTs can help by providing
 - access to credible and timely information
 - access to knowledge on farm practices
 - more convenient and cheaper services by private sector and government
- Farmers can be helped in the entire cycle of production- from decision on crops to be grown to production and sales
- In measuring cost of access to information, trust (credibility of source and accuracy) is important
- Opportunity of missed profits/ economic value because of lack of information is also important
- Observable transaction costs: include marketing costs such as transport, handling, packaging, storage, spoilage etc.
- Unobservable transaction costs: include cost of information search, bargaining, screening, monitoring, co-ordination, enforcement
- No systematic attempt to measure costs in India



Low Bargaining Power of Indian Farmer

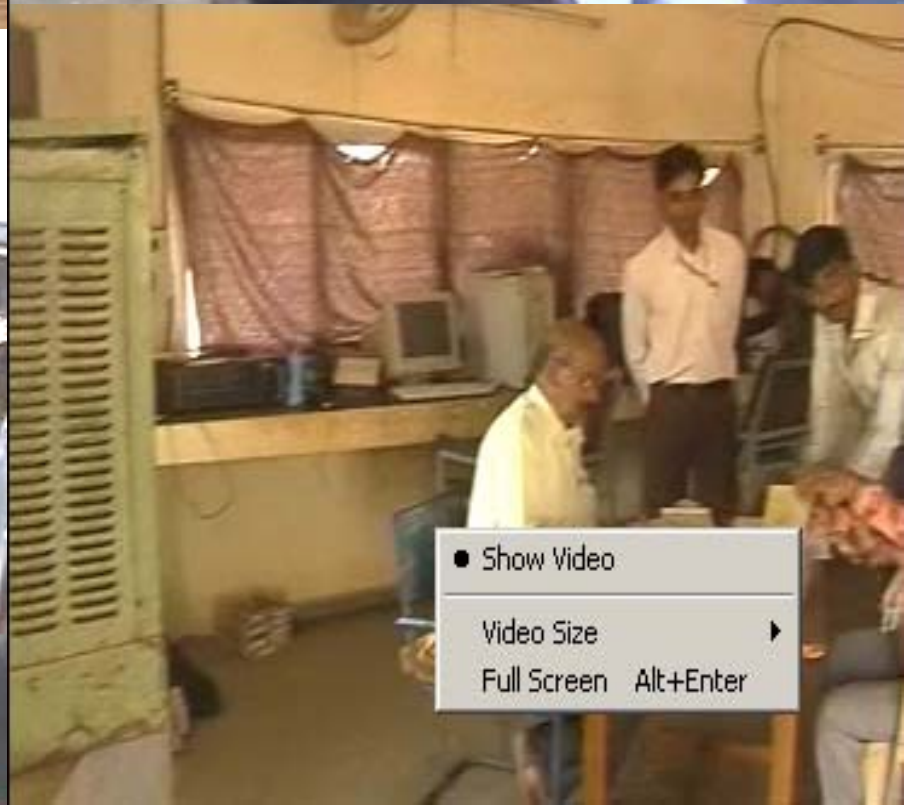
- Fragmentation: Average holding less than 1.5 hectare, poor bargaining power
- Geographic dispersion 120 million farmers in 600,000 villages
- Heterogeneity: Knowledge, risk taking ability, soil, precipitation, irrigation
- Lack of Institutional Infrastructure: Credit approval, banking, insurance
- Dependence on middle man for credit, leading to a vicious circle

Madhya Pradesh State Agricultural Market Board Computerization

- There are 7 Regional Offices, 231 Mandis and associated Sub Mandis
- The organization serves around six million farmers of the state (trading in 1700 commodities); and 70,000 licensed traders
- Trade volume handled : 12.5 million tonnes annually worth Rs. 140 billion. Collect a fee of Rs. 2 billion
- The web site is visited by 8-10,000 visitors resulting in 50,000 page views
- 85 % of visitors are from out of state



Mandi Computerization



- Show Video
- Video Size ▶
- Full Screen Alt+Enter

Weighing of Farm Produce: Preparation of Standard Bags (90 to 100 Kg)



Grain Loss: 2-3 Kg
per Quintal (100 Kg)



Mandi Board Website – Main Menu

Madhya Pradesh State Agricultural Marketing Board (Mandi Board)
मध्यप्रदेश राज्य कृषि विपणन बोर्ड (मंडी बोर्ड)

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NCDEX Futures: 1,010.00 - BARLEY JUN-08 1,023.00 - BARLEY JUL-08 1,010.00 - BARLEY AUG-08 906.00
Spot: BUSTA CHERRY AB KSN 85.25 - COMMON PARBOILED RICE DEL 992.15 - COMMON

मुख्यमंत्री का संदेश

- manthan.htm
- Background
- Citizen Charter
- Mandi Board
- Manthan 2007
- Mandi Members
- Expression of Interest
- Organization
- Vision
- "EKVI" Project
- Government Schemes
- Right of Information
- Agriculture Marketing Statistics
 - ◆ Mandi Basic Information
 - ◆ Mandi Grade
 - ◆ Mandi Arrival
 - ◆ Mandi Rates
 - ◆ List of Mandis according to Arrival of Selected Commodities
- Mandi Act
- Mandi Bye laws
- Mandi Manual
- Magazine * KHET AUR

- ~ Madhya Pradesh is known, an important area wise its population of about 73% is Cereals cover Commercial fodder and r
- ~ Of the total population is about 24% is about 24% is about 24%
- ~ The state share (Gram 44%)
- ~ The State also national prod
- ~ Among vegetable total national
- ~ Major Agriculture

Madhya Pradesh State Agricultural Marketing Board (Mandi Board)
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व्यक्ति कृषि उपजों की दैनिक विक्रय एवं भाव की जानकारी

Selected Commodity Name: **Wheat-General**

Information Date: 1/11/2007

Graph

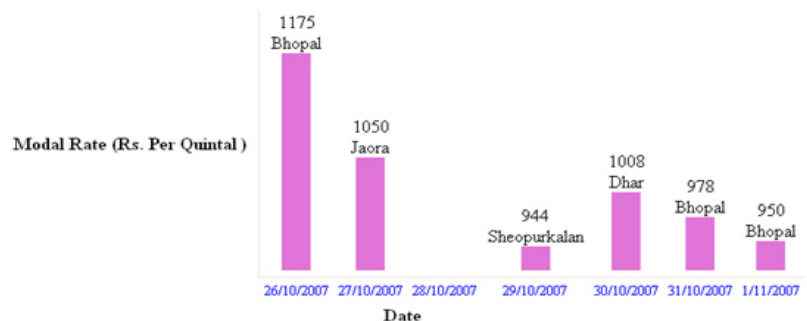
Name of APMC	Total Sale on the date of information (in Quintal)	Rate in Rs. (Per Quintal)		
		Minimum	Maximum	Modal
Bhopal	89	937	950	950
Dhar	120	900	950	950
Kumbhraj	4	900	900	900

Madhya Pradesh State Agricultural Marketing Board (Mandi Board)
मध्यप्रदेश राज्य कृषि विपणन बोर्ड (मंडी बोर्ड)

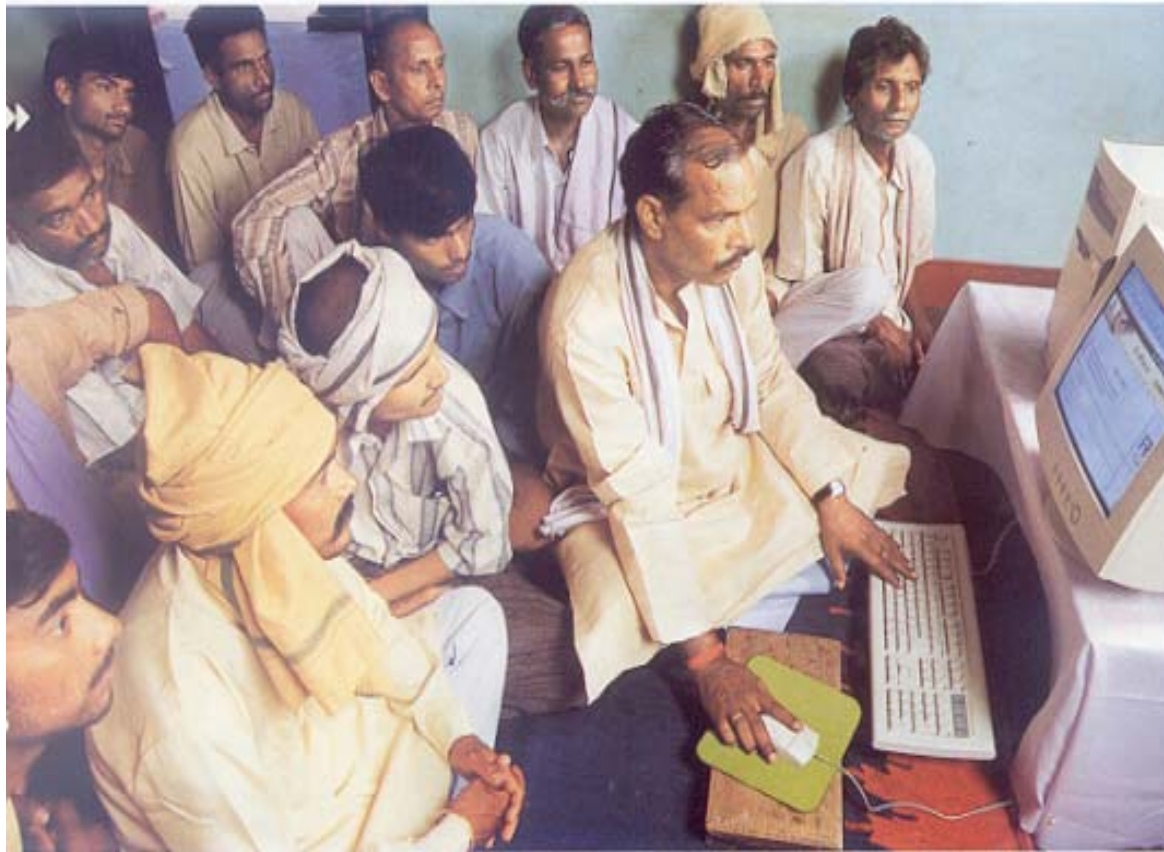
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NCDEX Futures: BARLEY APR-08 1,005.00 - BARLEY MAY-08 1,015.00 - BARLEY JUN-08 1,040.00 - BARLEY JUL-08 1,010.00
Spot: ALUMINIUM MUM 102.40 - ALUMINIUM INGOT MUM 109.90 - ARABICA COFFEE NEW HSN 112.80 - BARLEY

Maximum Modal Rate in the Last Week: **Wheat-General**



ITC's eChoupal



Internet kiosk in the house of a trained farmer within walking distance of target farmers

Warehousing hub managed by the erstwhile middleman, within tractorable distance of target farmers

- Procure 2 million Tonnes valued at US\$ 400 million
- 6400 eChoupals in 5 states of India covering 38,000 villages, servicing 4.0 million farmers, sourcing 13 agri commodities (oilseeds, grains, coffee, aquaculture)

Services and Benefits to the Farmers

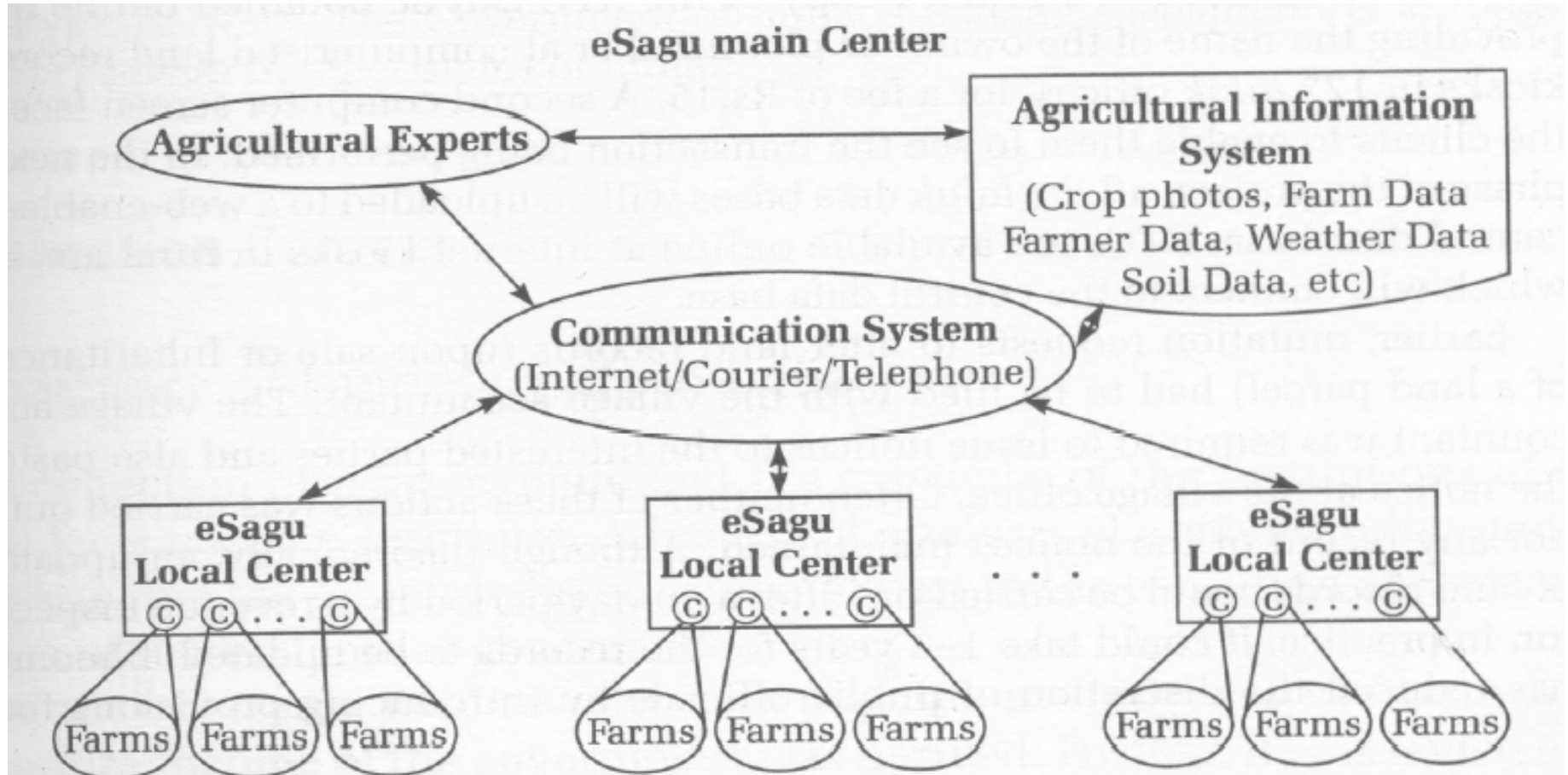
- Relevant & Real-time Information despite distances
 - Commodity prices, Local Weather, News
- Customised Knowledge despite Heterogeneity
 - Farm Management, Risk Management
- Supply Chain for Farm Inputs
 - Screened for quality, demand aggregation for competitive prices & efficient logistics
- Higher Incomes for Farmers through
 - Increased Yields; Improved Quality; Reduced Transaction Costs
 - Power of Scale to the Small Farmer
- Lower Transaction Costs, Better Value through Traceability
- Marketing a variety of goods and services (agri-inputs, consumer goods, insurance, market research)

Reduction in Transaction Costs

Rs per MT

Farmer Incurs	Trolley Freight to ITC Hub = 120	
	Labour = 50	370 120
	Kaechha Adat = 150	
	Handling Loss = 50	
Processor Incurs	Commission to Sanchalak = 100 50	
	Cost of Gunny Bags (net) = 75	335 215
	Freight to Factory = 120	
	Storage & Handling at Hub = 40	
	Cash Disbursement Costs = 50	
Total Chain		705 335

e Sagu System : A Collaboration Amongst Research Institutions



Parts of eSagu system . C indicates coordinator . A double arrow indicates the information flow.

eSAGU Impact on Costs

- Implemented in 5000 farms spread in 40 villages over six districts in Andhra Pradesh for 6 major crops
- Benefit to farmer is about Rs 3,820/- per acre.
 - fertilizers (0.76 bags) per acre = Rs 229.70/- per acre
 - pesticide sprays (2.3) = Rs 1,105/- per acre
 - extra yield (1.56 quintal) = Rs.2,485/- per acre.
- Expenditure is Rs 1200/- per acre.
- Farmers in a few Mandals have formed small cooperatives, pooling funds, for purchase of fertilizers and pesticides.
- Farmers need not be literate



Before
treatment

After
treatment





AGRI-WATCH PORTAL

<http://www.agriwatch.com/>



MoneyWatch CommodityWatch

Login: Password:

[New User?](#) [Forgot Password?](#)

Online Trading Platform

Most Comprehensive Commodity Information on web.

February 07, 2008

GRAINS	PULSES	VEGOILS	OILSEED	OILMEAL	SUGAR/GUR	COTTON	GUAR	SPICES	PLANTATION	METALS	BASE METALS	GENERAL
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HOME	EDITORS CHOICE	FEATURED STORY	ECONOMY CANVAS	EXCHANGE INSIGHT	GLOBAL MARKETS	SPOT LIGHT	COMMODITY TREND	MARKET REVIEW
	QUICK NEWS	TRADE MECHANICS	SPECIAL SERIES	CROP WEATHER	EVENT WATCH	INTERVIEW		

NCDEX Futures	NCDEX Spot	MCX Futures	NMCE Futures	AGRIWATCH	ALL
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(Member - NCDEX, MCX)

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Making Dairying Economically Profitable at the Farmer's Level

- Increasing transparency in collection through e-weight, fat testing and immediate payment
- E-commerce: cattle feed, artificial insemination
- Knowledge on disease
- Veterinary services
- Increasing the yield of milk per animal
- Reducing dry days and increasing yield per day



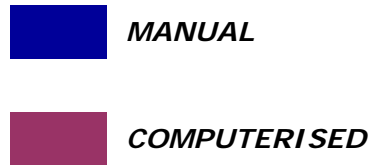
Transaction Costs Saved Through Different Projects

Stages	Invisible and Visible Costs	eChaupal	Mandi	eSAGU	Agri-watch
Decision	Visits to meet farmer association officials to decide on a crop			*	*
Seed	-Cost of finding info on a particular seed -Cost of traveling to purchase seeds if the seeds not available	*		*	
Land and planting	-Costs of finding labor -Costs finding machines to prepare the land				
Growing	-Costs of finding fertilizer, pesticides, weedicides etc -Costs of traveling to purchase fertilizer, pesticides, weedicides etc if those were not available	*		*	
Harvesting, Packing, and Storing	-Costs of finding market prices -Costs of finding labor -Costs of finding storage, packing materials etc	*			
Selling	-Costs of comparing prices of different traders -Costs of finding transport Freight and handling losses	*	*		*

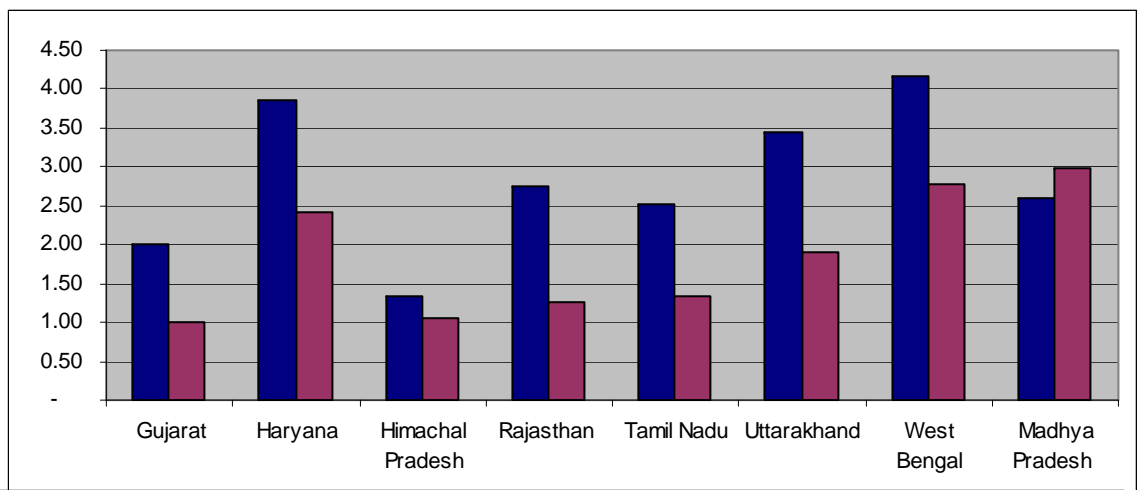
Land Record Computerization(Karnataka)

- 20 million records, 6.7 mln farmers, 9000 villages.
- Manual RTC issue took 3-30 days and a bribe of Rs 100-2000. Mutation can take up to 2 years (30 days)
- 180 centers operational for one year where RTCs are issued on-line for a fee of Rs 15. Mutation request filed on line
- 5.2 million users, Rs. 80 millionn collection goes to dept.
- **Issue of land records from 800 Tele Centres** thru a private agency with bar code embeded digital signature
- **Crop updation using Tele Centres:** Pilot at 50 centres. Web enabled to verify records on Internet.

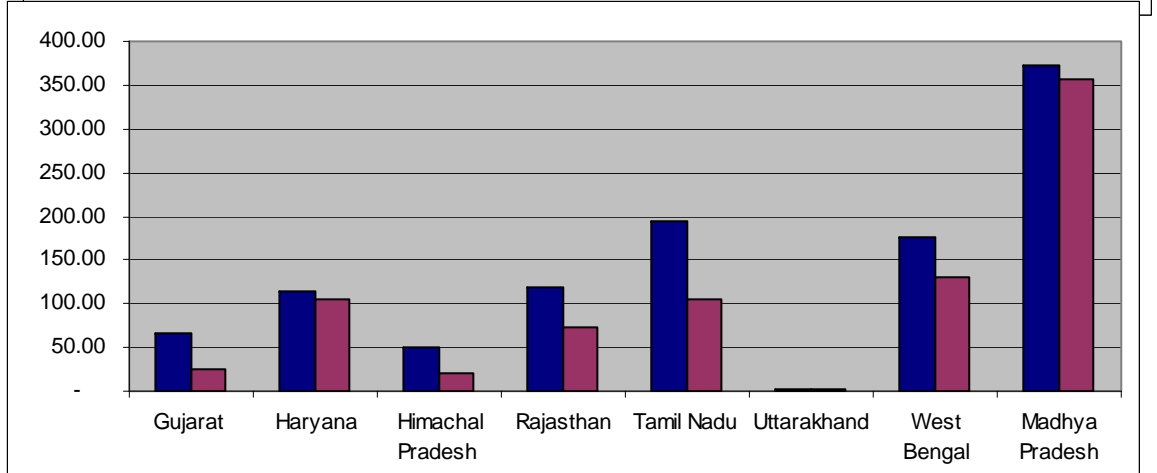
IMPACT OF LAND RECORDS COMPUTERIZATION



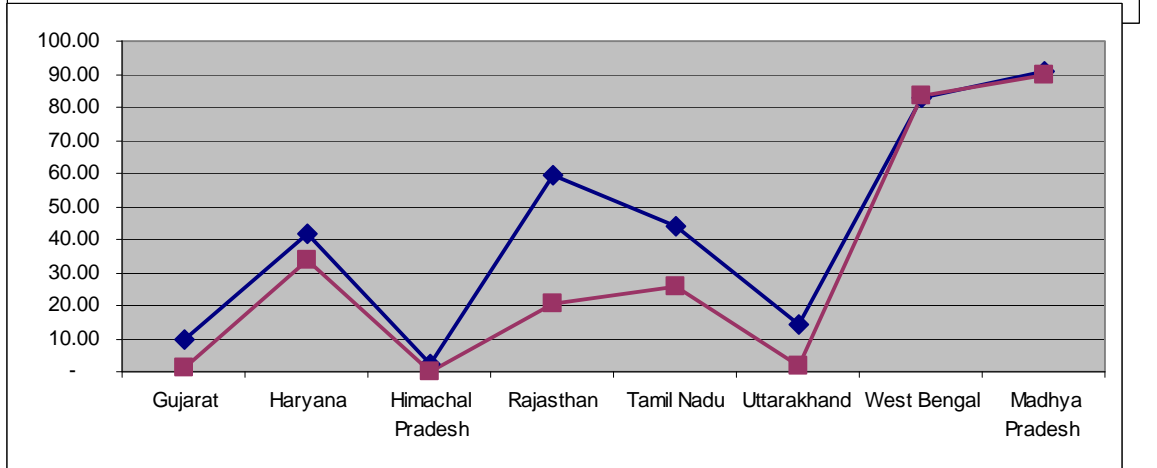
NUMBER OF TRIPS



WAITING TIME



% PAY BRIBES

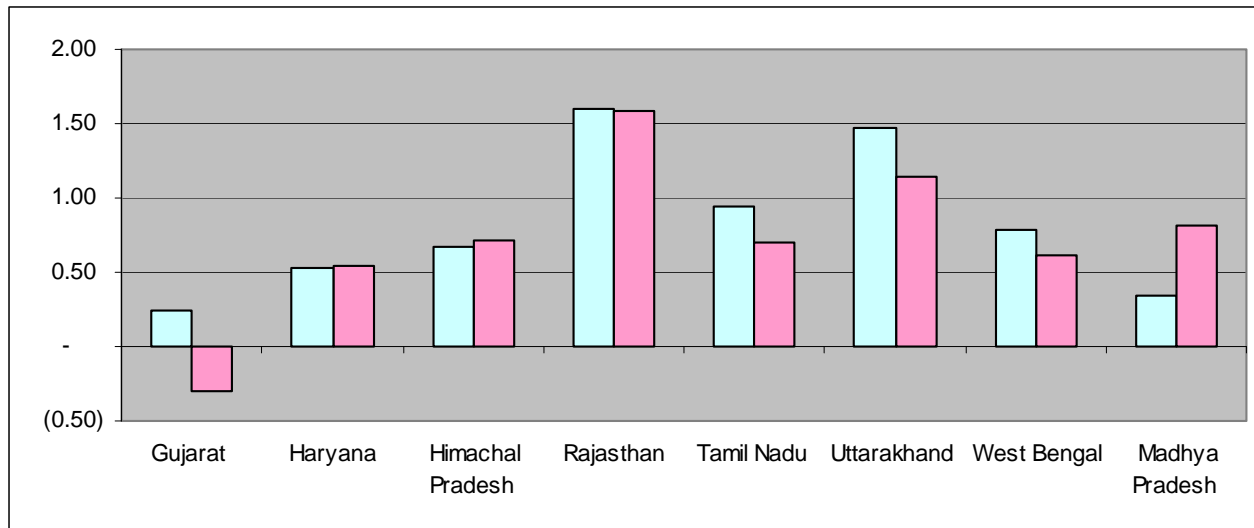


IMPACT OF LAND RECORD COMPUTERIZATION

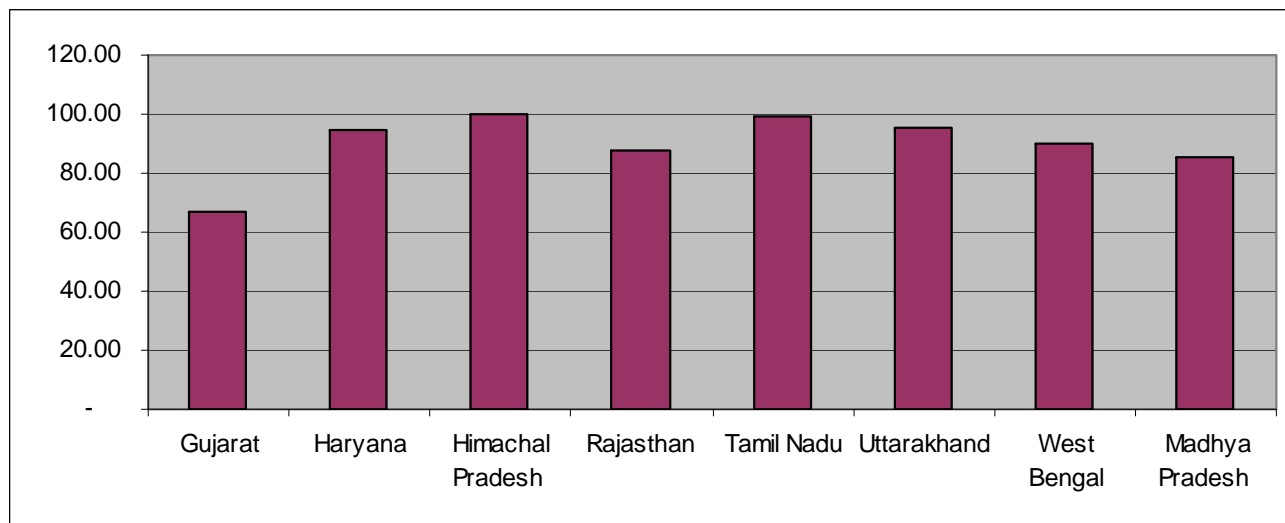
SERVICE QUALITY

GOVERNANCE

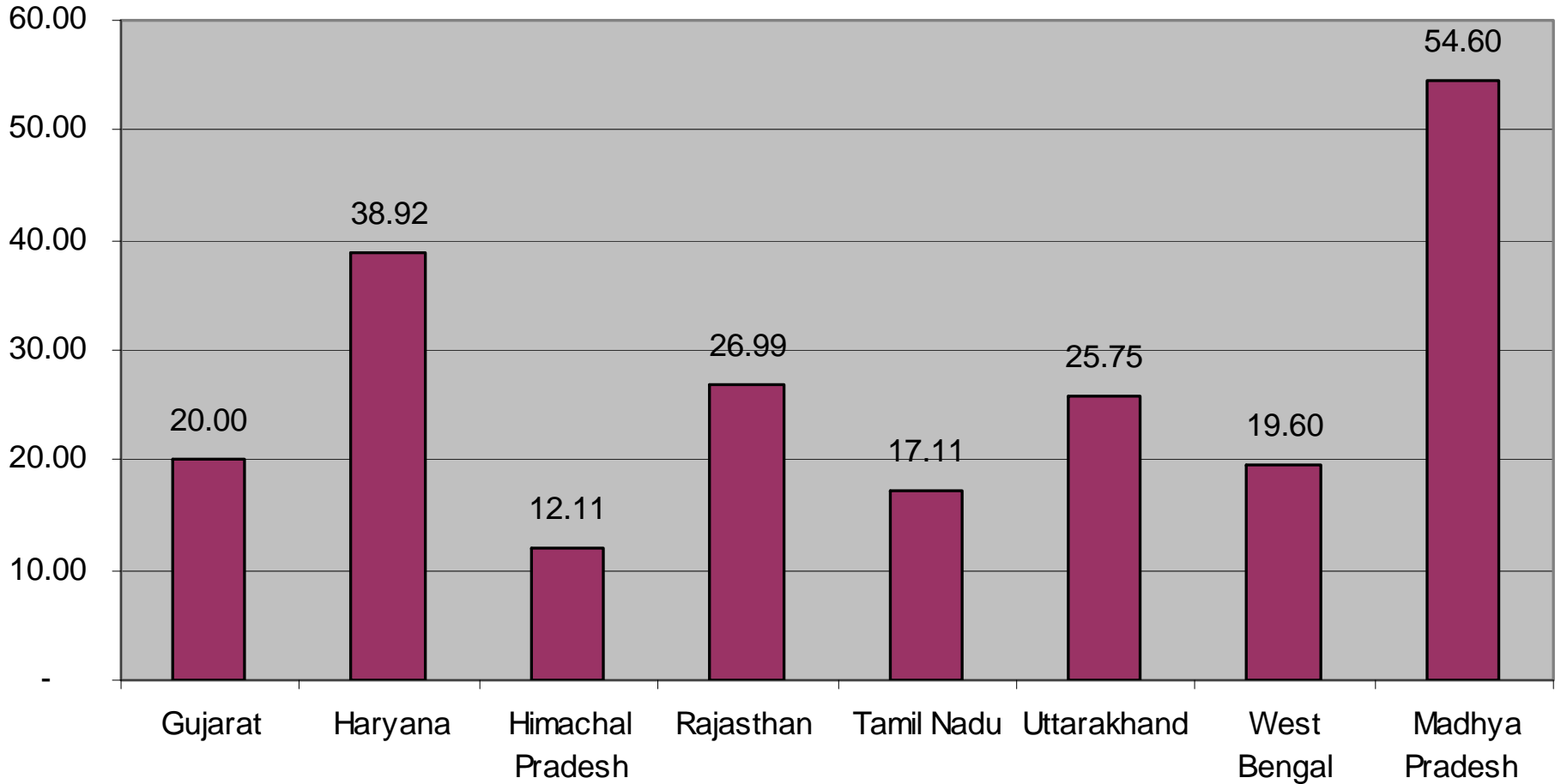
**IMPROVEMENT OVER MANUAL
ON A FIVE POINT SCALE**



**PERCENT
PREFERRING
COMPUTERIZATION**



Travel cost incurred in each trip to a taluk center (Rs.)



Average Cost per Trip is Rs. 18.7

Learning from Indian Experience

- Changing age old systems is a complex task requiring many partners- need to utilize the drive and entrepreneurship of private enterprise
- Organizational design- coming together of partners with specific value proposition, incentives and rules to cooperate.
- Creative use of technology in places or for a purpose not originally intended. Combining emerging and traditional technologies to overcome constraints
- Focus on concrete value delivered by use of ICTs and improvement in logistics
- Adapting business models to local contexts to make them sustainable
- A phased implementation that is demand driven, with systematic assessment at the end of a phase
- Technology adoption is a slow process-may take 5 years