

# Improving efficiency of agricultural value chains

09 May 2011  
Thimphu, Bhutan



This work was carried out with the aid of a grant from the International Development Research Centre, Canada and the Department for International Development, UK and the ENRAP (Knowledge Networking for Rural Development in Asia Pacific) programme



## Agriculture in South Asia – lowest share of GDP but often highest share of labor

		Bangladesh (%)	India (%)	Pakistan (%)	Sri Lanka (%)	Bhutan (%)
Share of GDP (2009)	Agriculture	19	18	22	13	18
	Industry	29	27	23	20	45
	Services	52	55	54	58	37
Share of labor (year)	Agriculture	52 (2008)	52 (2008)	44(2007)	32 (2007)	44 (2005)
	Industry	14.5 (2005)	N/a	21 (2007)	28 (2007)	17 (2005)
	Services	37.4 (2005)	N/a	35 (2007)	40 (2007)	39 (2005)

AGRICULTURE = LOW PRODUCTIVITY

- 75% of the world's poor live in rural areas (WB, 2007)
- 31% of the rural population in Bhutan is below the Poverty line

# Making a market efficient

TABLE I  
PRICES AND EXCESS SUPPLY AND DEMAND IN FIFTEEN SARDINE BEACH MARKETS

	Price (Rs/kg)	Excess buyers	Excess sellers
Kasaragod District			
Hosabethe			
Aarikkadi			
Kasaba			
Kanhangad			
Thaikadappuram			
Kannur District			
Puthiangadi			
Neerkkadavu			
Ayikkara			
Thalassery			
New Mahe			
Kozhikode District			
Chombala	9.9	15	0
Badagara	0.0	0	11
Quilandi	9.8	12	0
Puthiyangadi	0.0	0	6
Chaliyam	6.4	0	0

Sept 14, 1997 data shown; Experiment 1997 – 2001

With coverage increasing; outside home market sales 0% → 35%

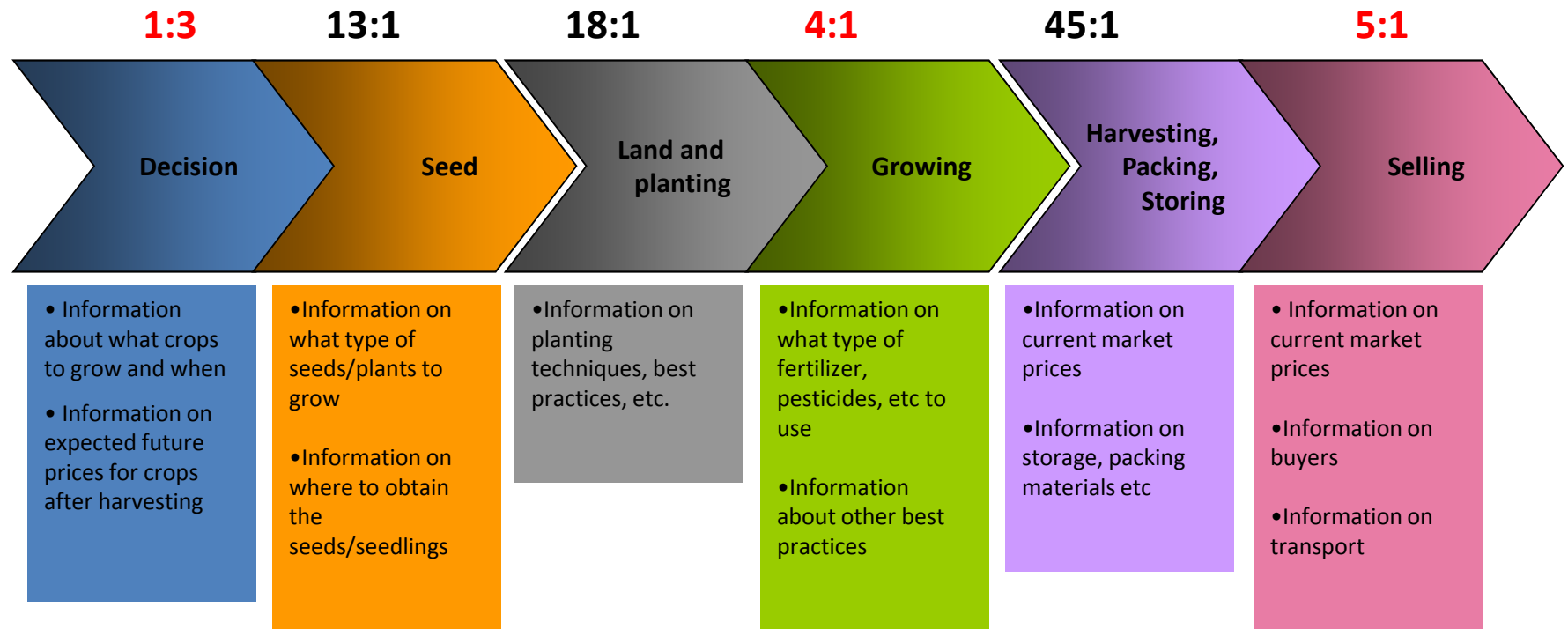
Price variations reduce (from 60-70% to 15%)

In 1997, Waste 5-8%. By end of study, Waste = 0%;

Fisherman profits up 8% (fisherman benefit)

Fish price down by 4% (consumer benefit)

# From decision to growing to harvesting: information that is *accurate, timely & actionable* is needed



De Silva & Ratnadiwakara (2008) found that a 300 sample of farmers in Sri Lanka spent as much as 11% of their total production cost on information search

# Some services in India, Sri Lanka and Bhutan

	<b>IKSL, India (June 2007)</b>	<b>RML, India (Oct 2007)</b>	<b>Tradenet , Sri Lanka (Dec 2009)</b>	<b>IVR system, Bhutan (Nov 2009)</b>
<b>Services Provided</b>	Market price information Crop advisory service Weather forecasts	Market price information Crop advisory service Weather forecasts	Market price information, Trading platform matching buyers and sellers	Market price Information
<b>Partners</b>	Bharti Airtel + Indian Farmers Fertiliser Cooperative Limited (IFFCO)	none	Dialog Telekom + Govi Gnana Seva (GGS)	B Mobile-SNV-Ministry of Agriculture, marketing and cooperatives
<b>Price</b>	Free Voice messages Helpline service: INR 1/ min	Maharastra: INR 175 for three months INR 350 for six months INR 650 for an year	Free for the moment for the SMS alerts, Call center LKR 3+Taxes per min	Free
<b>Mode of delivery</b>	Voice message IVR	SMS	SMS, USSD, Internet/WAP, Call Center	IVR
<b>Subscriber numbers</b>	1.5 million (Oct 2009)	170,000 (Oct 2009)	~13,000 (includes non-agricultural subscribers)	Data not available
<b>How is data</b>	•Through the auctioneers in the ...	•Through dedicated price collectors	•Through dedicated price collectors	•Through auctions under the Food Corporation of

# Problems faced by IKS, RML and Tradenet

- Benefits exist, but there are basic problems that only the government can address that can make the service provision more robust
  - Reliable , accurate and timely spot market information
  - Cold storage so that sellers can make better use of spot market information
  - Forward and futures markets to reduce volatility and help farmers make better growing decisions

**RELIABLE , ACCURATE AND TIMELY  
SPOT-MARKET INFORMATION**

# How to make the foundation stronger

	<b>IKSL, India (June 2007)</b>	<b>RML, India (Oct 2007)</b>	<b>Tradenet , Sri Lanka (Dec 2009)</b>	<b>IVR system, Bhutan (Nov 2009)</b>
<b>How is data collected</b>	•Through the auctioneers in the mundi's	•Through dedicated price collectors employed by RML at the market they cover	•Through dedicated price collectors employed by GGS at the market they cover	•Collected through auctions under the Food Corporation of Bhutan

- How data is collected
  - Trust issues
  - Sampling (within market and in the country)
  
- Solution
  - One entity (government/agent of government) collects the market information in a more comprehensive manner
  - Make the data available to any service provider who wants to add value/deliver across multiple formats to farmers



# Making the foundation stronger

- Ideal solution:
  - Transaction Generated Information captured through the use of a system through computers at the markets
  - It can be made mandatory that the system be used by all who engage in transactions
- 2<sup>nd</sup> best solution
  - Government employs data collectors in all the major markets
  - Government also establishes a quality assurance scheme
- Another solution (perhaps has potential to be 1<sup>st</sup> best)
  - Establish an online trading platform such as tradenet, in conjunction with e-payments
  - However, difficult to compel people to use it (though if it becomes heavily used like mPesa, less of a problem)

# Delivery of information

Display screens in a market



**COLD STORAGE SO THAT SELLERS CAN  
MAKE BETTER USE OF SPOT MARKET  
INFORMATION**

## H.M.M.G. Dissanayake Banda

- Owns and cultivates 1.5 acres of land
- Land 10-15km from the main market (Dambulla Dedicated Economic Centre)
- Knows how to grow Cabbage, Sweet Potato, Brinjal, Big Onions, Rice
- Using Tradenet since beginning of 2010

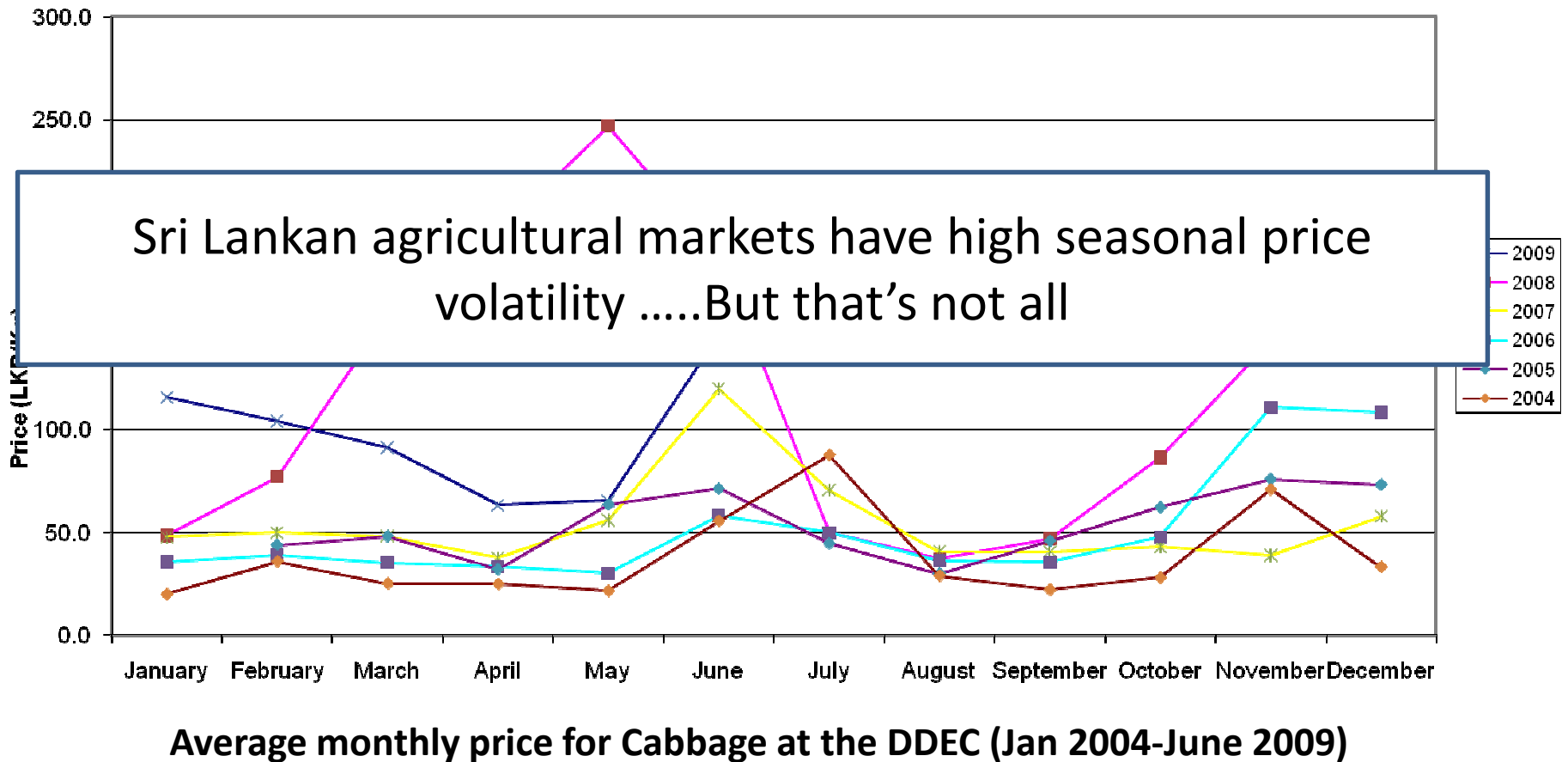


## After Using Tradenet:

- One day when his cabbage crop was ready for harvesting, he noticed prices at Dambulla had risen from USD 0.18/Kg in the morning to USD 0.32/Kg by the late afternoon.
- Realizing the upward trend, he used friends and family to quickly harvest his crop (having to use flash lights since it was dark by the time he finished harvesting)
- By the time he sold his cabbage crop at the market he was able to obtain USD 0.41/Kg - a premium of USD 0.14/Kg (51.8%) on what he had hoped to make on the crop.
- He has also been following prices of green chilies on Tradenet which he thinks can get him higher prices but doesn't know how to grow them so is now looking for additional advisory services that can help him understand green chili cultivation.

**FORWARD AND FUTURES MARKETS TO  
REDUCE VOLATILITY AND HELP  
FARMERS MAKE BETTER GROWING  
DECISIONS**

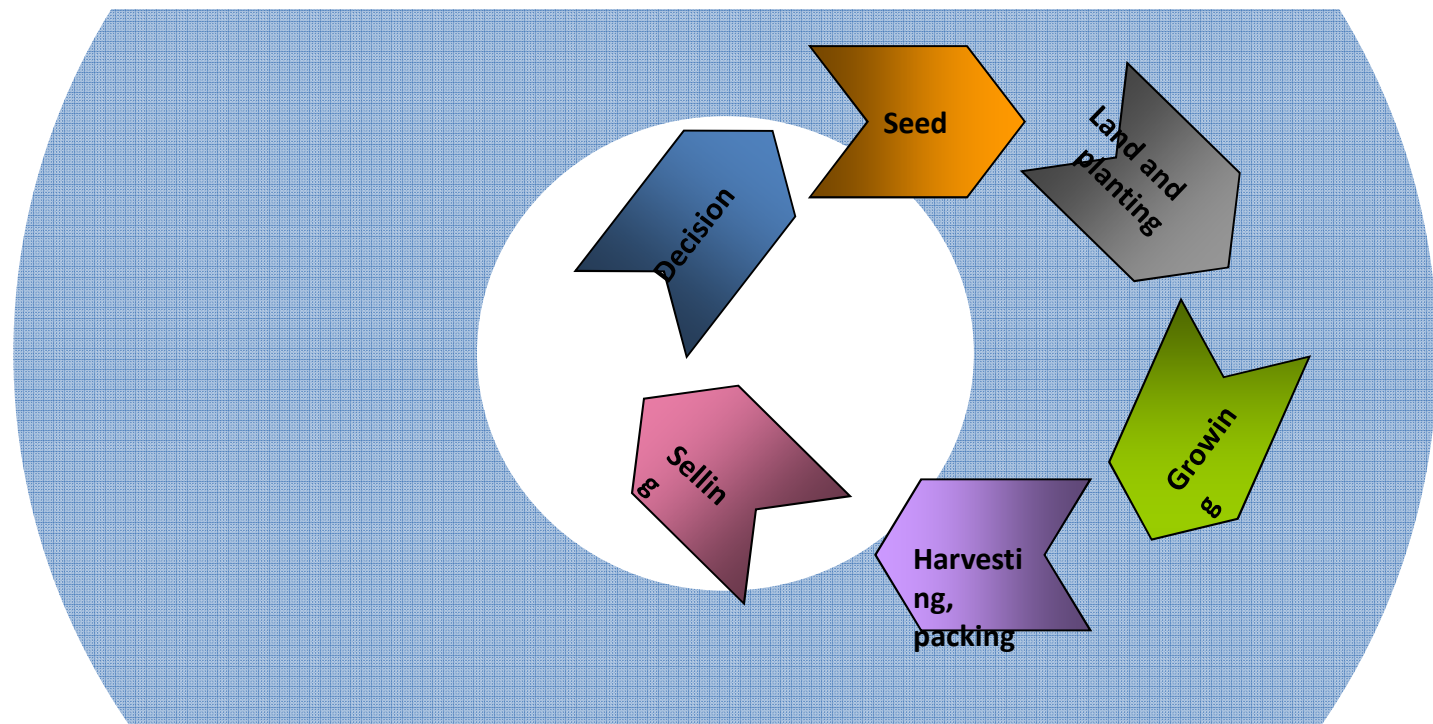
# Information asymmetry with respect to prices leads to high price volatilities...



# Role of ICT in agriculture

relevant, accurate & timely  
information

- Integrated systems that address individual information needs from Decision to Selling
  - Closing the loop: Decision  $\leftrightarrow$  Selling
  - Forward sales contracts [FSC]



# Thank you

More information at [www.lirneasia.net](http://www.lirneasia.net)