

Role of ICT in creating efficient agriculture market in Sri Lanka a value-chain approach

Harsha de Silva
Lead Economist, LIRNEasia

25 February 2008



LIRNEasia

Learning Initiatives on Reforms for Network Economies

Basic theory

- Information is critical for efficient functioning of markets
- In reality information is costly and markets are not always efficient → High transaction costs
 - Agriculture markets in Sri Lanka
 - Even at the Dambulla Dedicated Economic Centre [DDEC]



The practical problem

- Farmers are poor
- Food is expensive
- How can ICT be used to reduce information costs [unobservable transaction costs] → increase efficiencies in agricultural markets → increase welfare both for farmers and consumers
 - Higher farmer income; lower consumer prices



Attempts at reducing information costs

- Focus on information related to the Selling stage of the value chain [VC]
 - Reduce search cost of market prices [particularly for perishables]
- HARTI, radio, newspapers etc.



DDEC



[Back](#)



Before: Costly information search



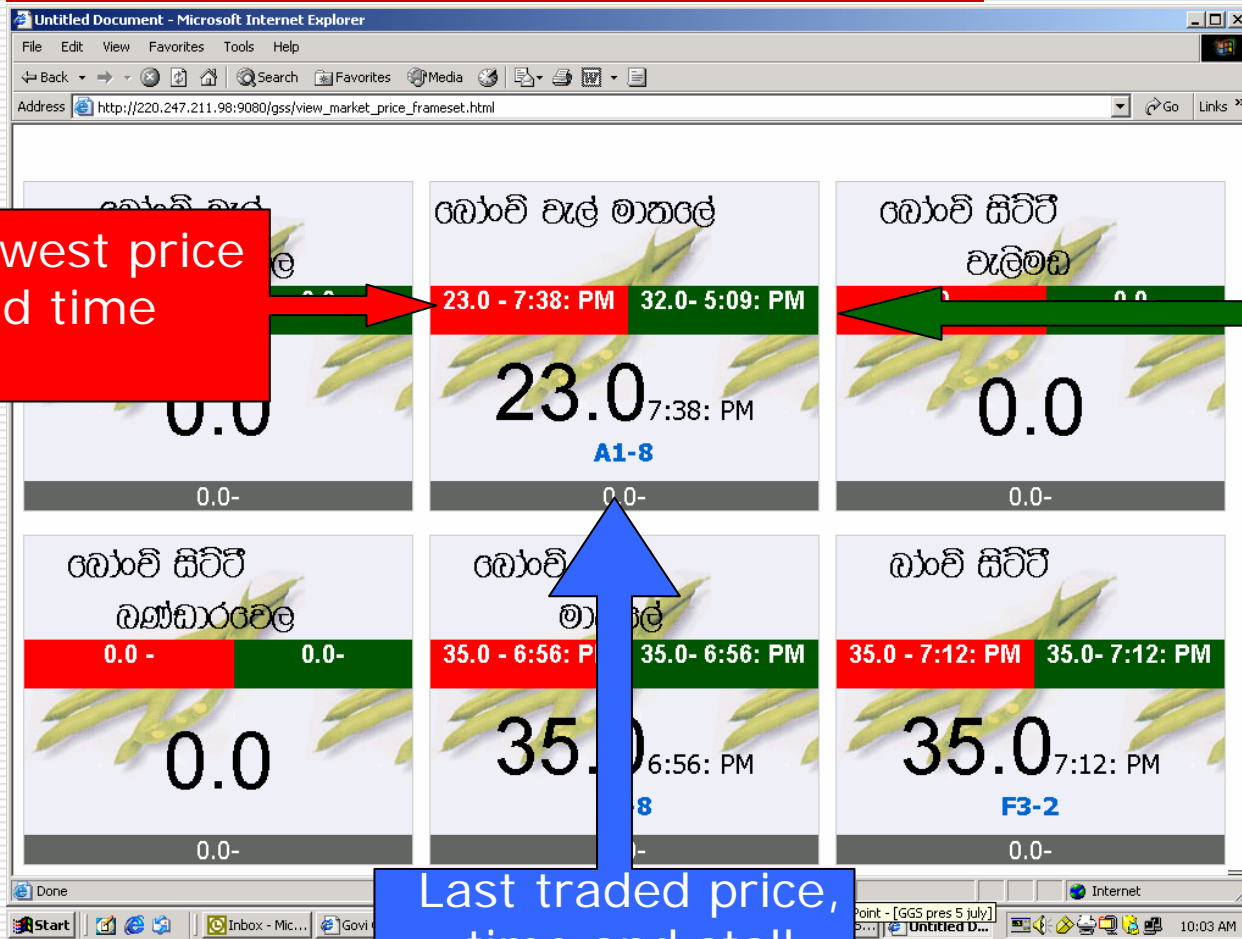
Price capture at trader stalls



After: Spot price information disseminated widely at DDEC



GGs Price Boards at DDEC



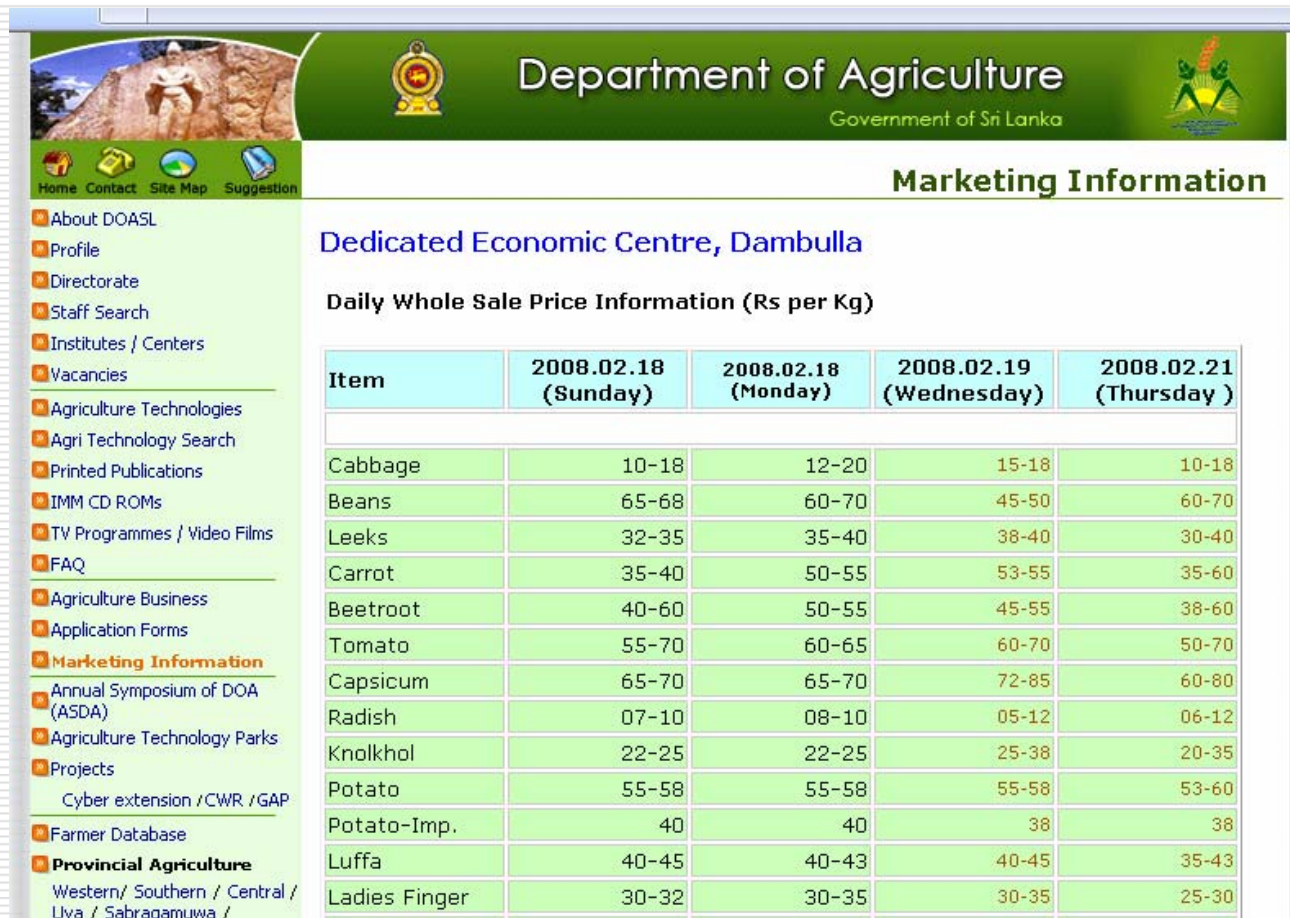
Lowest price and time

Highest price and time

Last traded price, time and stall number



External dissemination



The screenshot shows the website of the Department of Agriculture, Government of Sri Lanka. The header includes the department's name and logo. A navigation menu on the left lists various services, with 'Marketing Information' highlighted. The main content area displays 'Marketing Information' and 'Dedicated Economic Centre, Dambulla'. Below this, a table provides 'Daily Whole Sale Price Information (Rs per Kg)' for various agricultural products across four dates: 2008.02.18 (Sunday), 2008.02.18 (Monday), 2008.02.19 (Wednesday), and 2008.02.21 (Thursday).

Department of Agriculture
Government of Sri Lanka

Marketing Information

Dedicated Economic Centre, Dambulla

Daily Whole Sale Price Information (Rs per Kg)

Item	2008.02.18 (Sunday)	2008.02.18 (Monday)	2008.02.19 (Wednesday)	2008.02.21 (Thursday)
Cabbage	10-18	12-20	15-18	10-18
Beans	65-68	60-70	45-50	60-70
Leeks	32-35	35-40	38-40	30-40
Carrot	35-40	50-55	53-55	35-60
Beetroot	40-60	50-55	45-55	38-60
Tomato	55-70	60-65	60-70	50-70
Capsicum	65-70	65-70	72-85	60-80
Radish	07-10	08-10	05-12	06-12
Knolkhol	22-25	22-25	25-38	20-35
Potato	55-58	55-58	55-58	53-60
Potato-Imp.	40	40	38	38
Luffa	40-45	40-43	40-45	35-43
Ladies Finger	30-32	30-35	30-35	25-30



So, the question is...

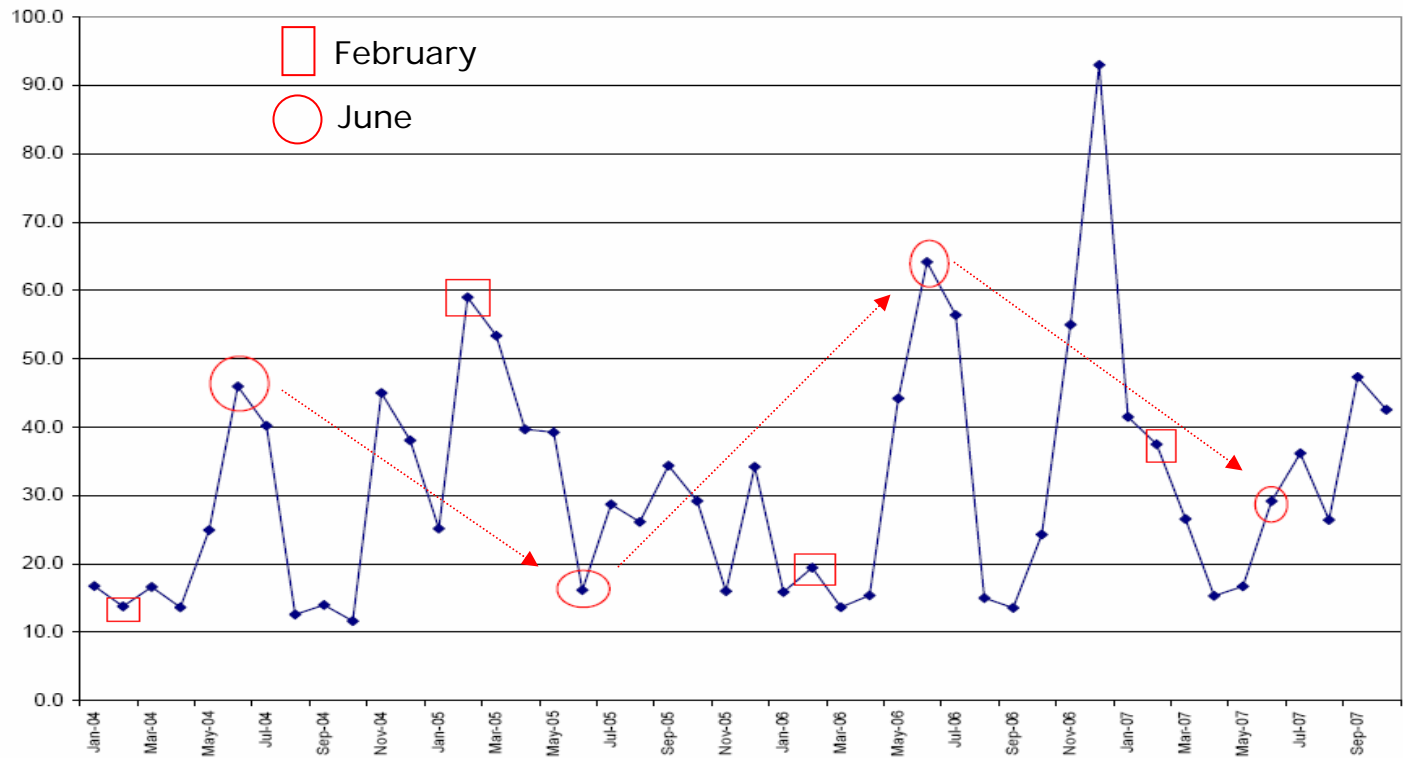
- If price dispersion falls and farmers, on average, get a higher price for produce, does it mean their profits, and welfare have increased?
- Yes, but?
 - Can welfare be increased further; maybe by much more?
 - Doing things **right** vs. doing the **right** thing



Tomato prices at DDEC

Jan 2004 – Dec 2007

□ Doing the right thing?



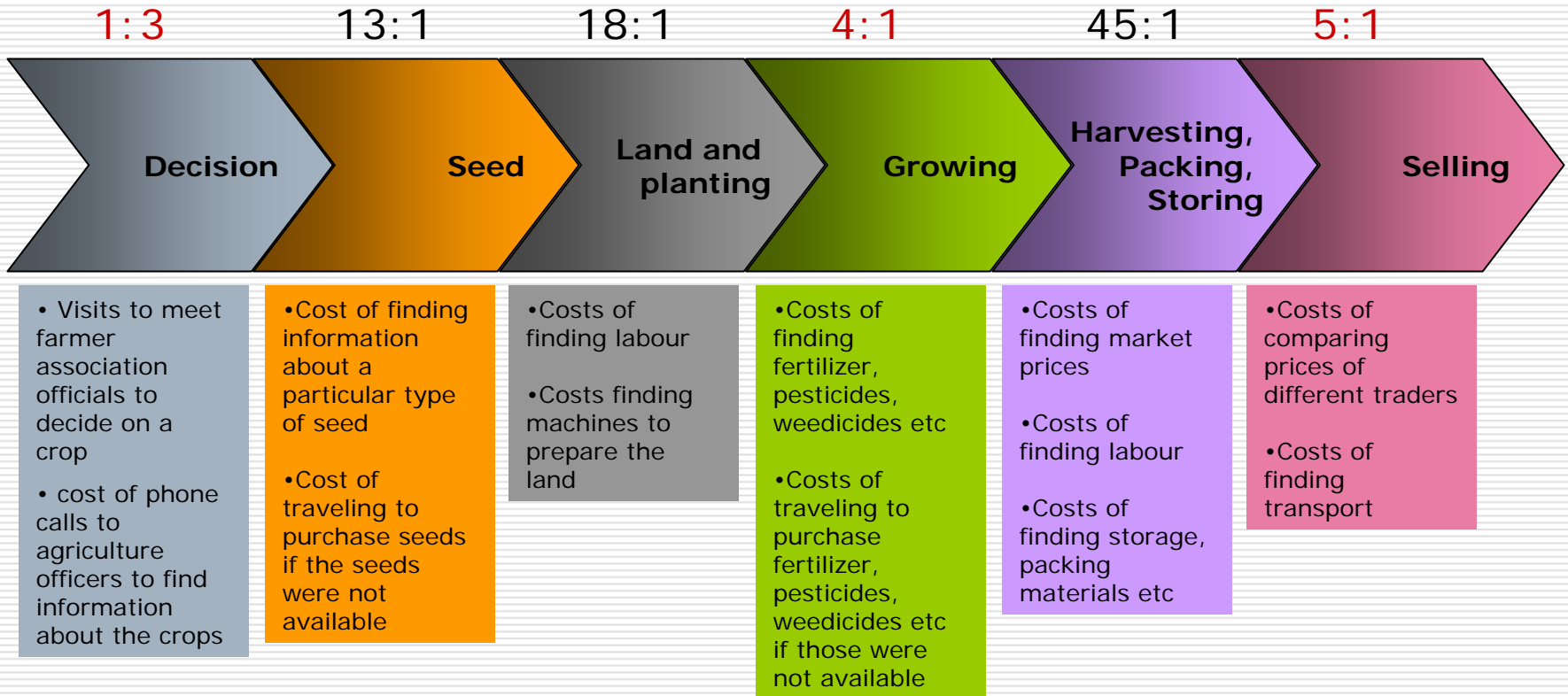
So, the real question

- If price dispersion falls and farmers, on average, get a higher price for produce, does it mean their profits, and welfare have increased?
- Yes, but?
 - Can welfare be increased further; maybe by much more?
 - Doing things right vs. doing the right thing
- Starting point is understanding the demand for information by disaggregating the activity in to a series of activities → VC



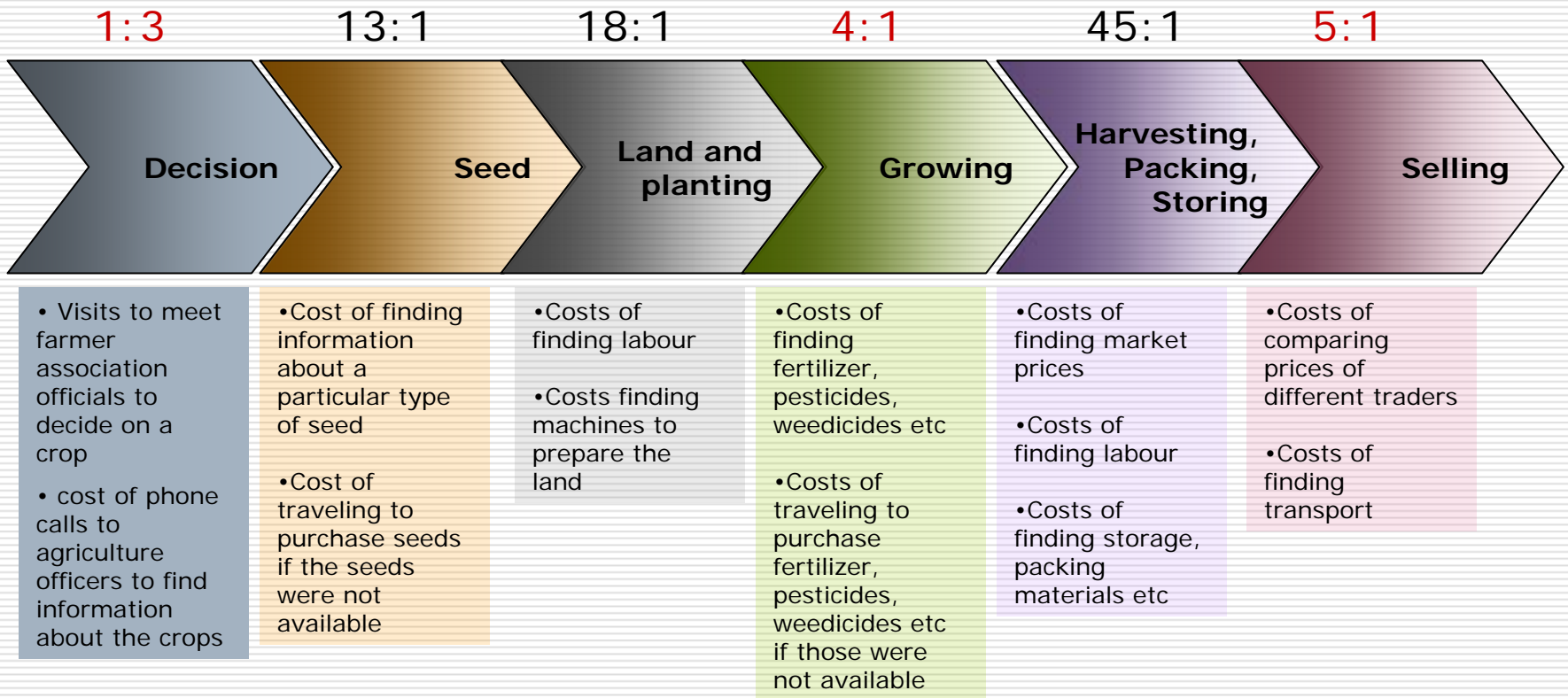
Demand for information

market driven; not centrally planned



Decision

5% cost of production; 75% relative information cost



Decision 2



GGs pilot objectives

If produce already brought to DDEC market
→ Help farmer get best possible price

If produce harvested, but not brought to DDEC
→ Help farmer decide whether to bring to DDEC or not

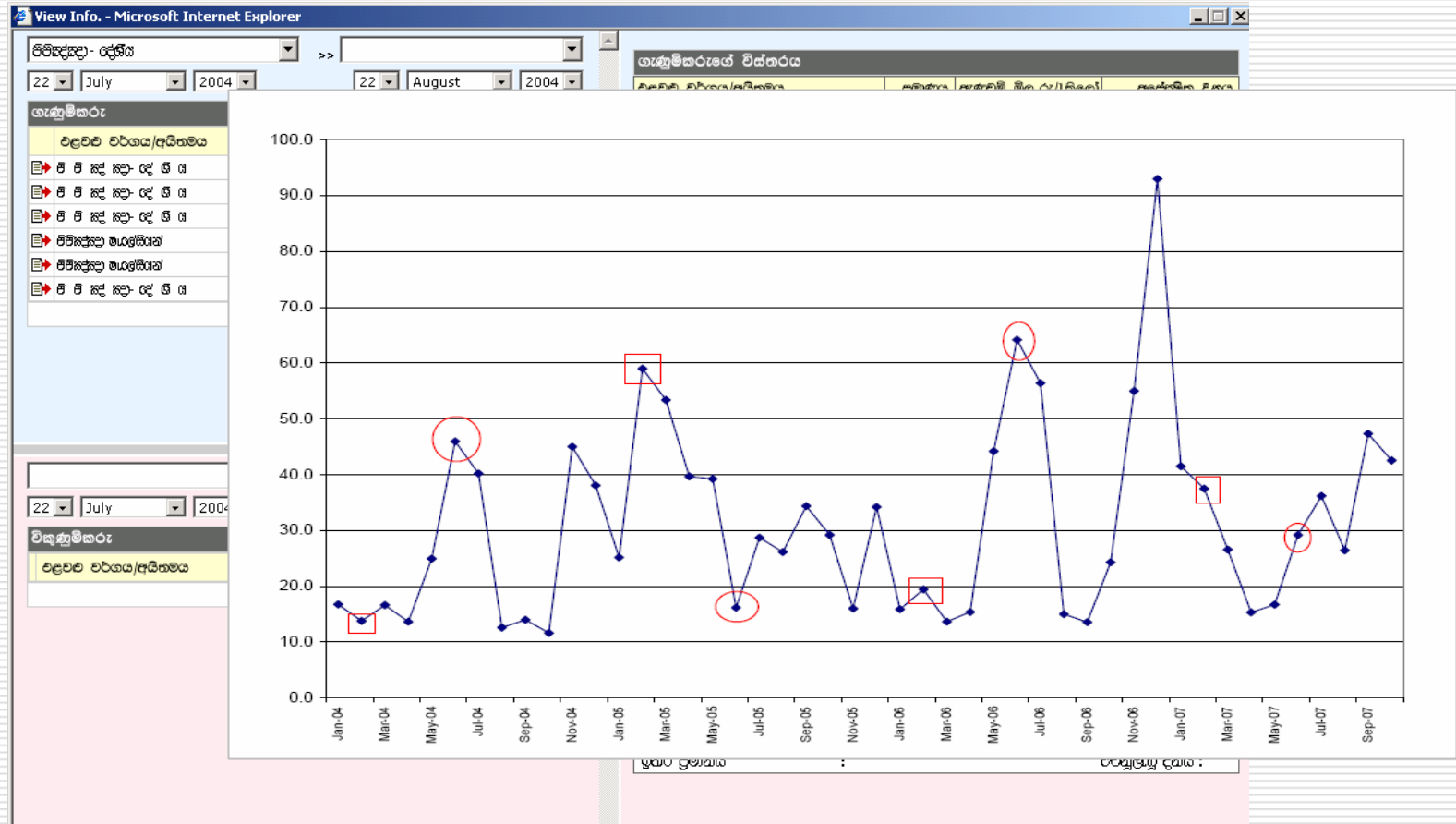
If produce just about to be harvested
→ Help farmer decide whether to harvest today or tomorrow or day after

If not planted, or many days to harvest
→ Help farmer enter into FSC

Source: Central Bank of Sri Lanka Forward Sales Contract Brochure

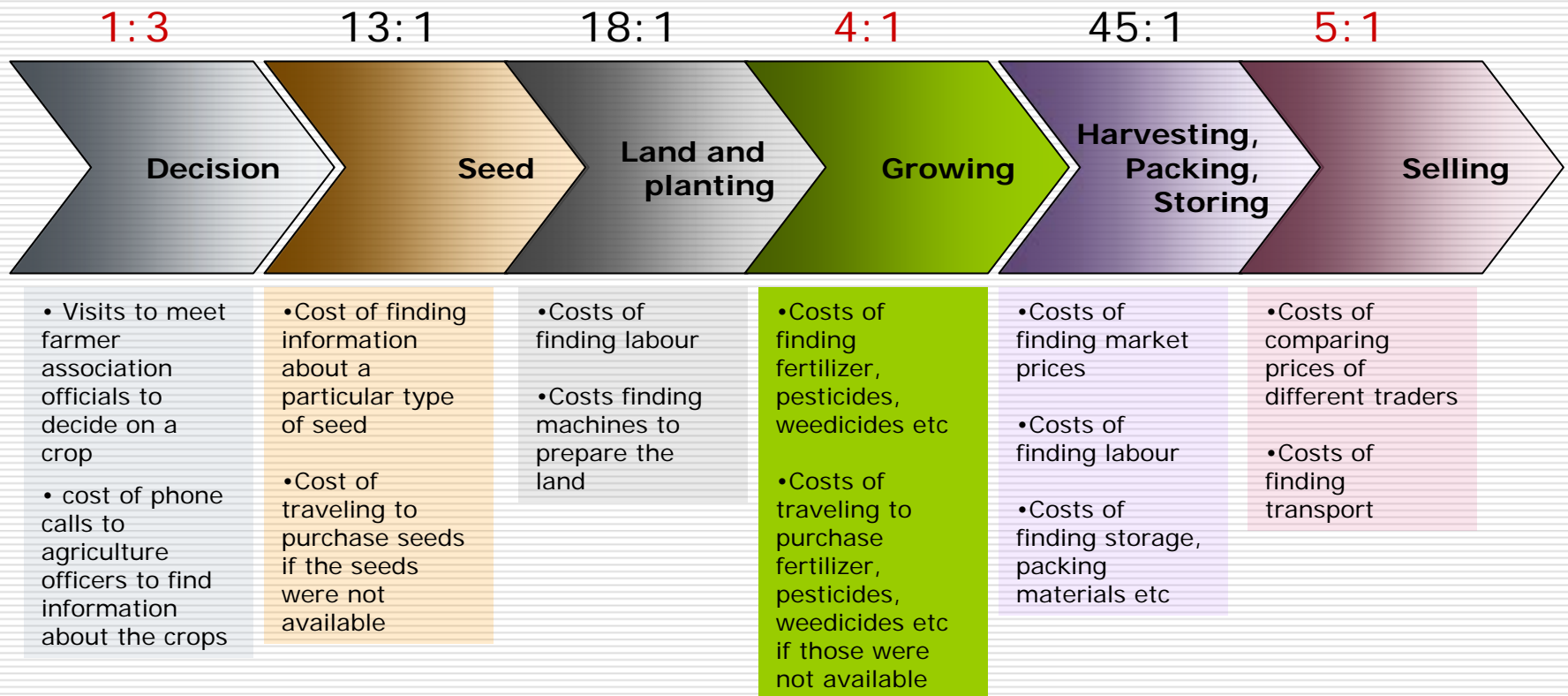


Decision 3



Growing

45% cost of production; 20% relative information cost



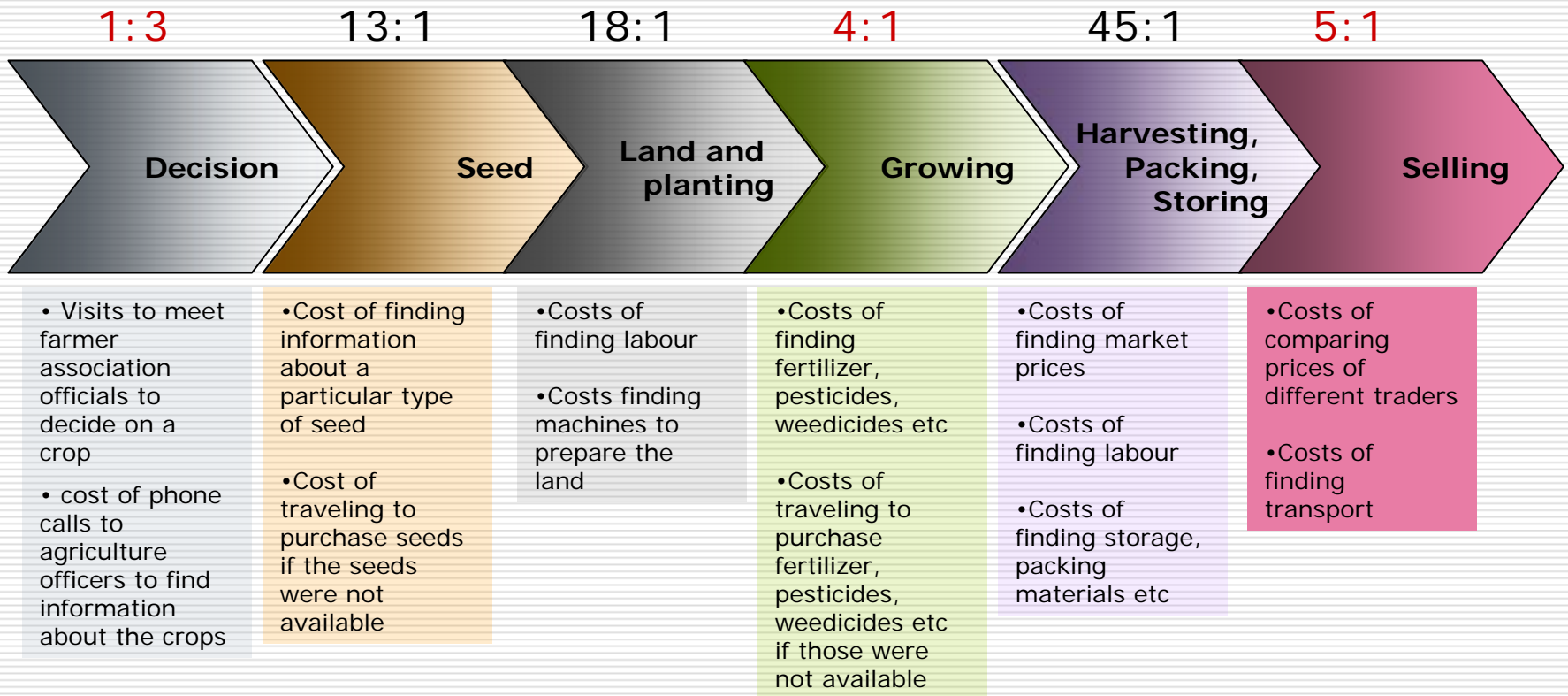
Growing 2

- Main cost is on information search on fertilizer subsidy



Selling

8% cost of production; **17%** relative information cost



Selling 2

If at market price boards, word of mouth

If not at market

Telephone

GGS



GGS pilot objectives

If produce already brought to DDEC market

→ Help farmer get best possible price

If produce harvested, but not brought to DDEC

→ Help farmer decide whether to bring to DDEC or not

If produce just about to be harvested

→ Help farmer decide whether to harvest today or tomorrow or day after

If not planted, or many days to harvest

→ Help farmer enter into FSC



Vision for Agriculture in Sri Lanka

- The 10 year policy framework
 - To transform subsistence agriculture to a commercially oriented and highly productive sector
 - Improve competitiveness
 - Increase exports



The future of ICT in agriculture markets

- Integrated systems that address individual needs from Decision → Selling
 - Core will be Decision + Selling; commodity exchanges
 - Spot, futures



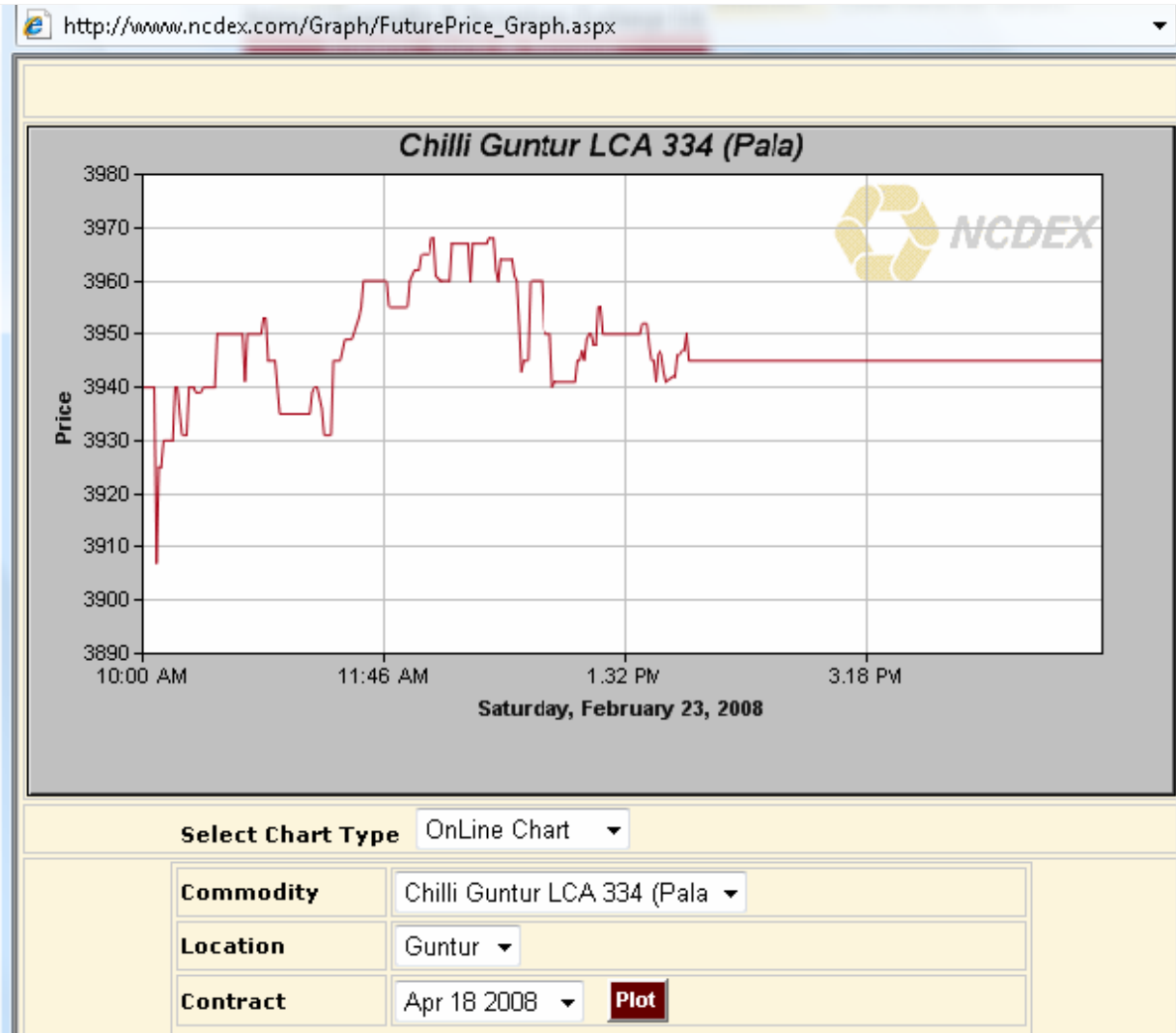
In many formats; simple

- ❑ Kenya Agricultural Commodity Exchange and Safaricom → SMS; IVR; Call



To the v

- NCDEX [M Exchange
- Benefits
 - Farmer
 - Use it f
- Issues
 - Lack of
 - High Q
 - Lack of



Internet or mobile phones?

- LIRNEasia study Teleuse@BOP; 2006
 - Use of Internet at BOP 1.5%
 - Owned a phone [mobile or fixed]
 - Entire BOP 41%
 - Whose primary occupation is Agriculture 41%
 - Projected mid 2008
 - Agriculture 72%



Sri Lanka

- Moving towards an agriculture commodity exchange → **primarily mobile phone driven** virtual exchange; fully Internet supported
- Address information needs at each point in the VC on a **pull-basis**; subscription during period of need
 - Planting decisions based on future prices or forward contracts
 - Input market information; Seed
 - Fertilizer etc.



Sri Lanka 2

- Host of farmer services will get linked up **multi-stakeholder** approach
 - Finance institutions and Micro-Finance Institutions
 - To validate forward contracts and offer crop loans based on discounted contract
 - Crop insurance schemes
 - Other durable goods providers
 - Standard certifying agencies
 - Traceability
 - Warehousing and logistics service providers
- Leverage on sophisticated technology now widely available; ability to pay via mobile phone etc.



Sri Lanka 3

- GGS is now working towards implementation with
 - LIRNEasia
 - Leading mobile phone company
 - [Banks, MFIs, insurance companies]
 - Government
 - Donors
- Current
 - www.mobile.ggs.lirneasia.org
 - <http://www.ggs.lirneasia.org> or <http://www.lirneasia.org/asianict/ggs/viewprices.php>



ICTs can improve efficiencies in agricultural markets which could in-turn help improve welfare of both farmers and end consumers.

desilva@lirne.net

