Can ICT benefit small farmers?
Tackling the Smallholder Quality Penalty

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Introduction

A Synthesis of findings of six smallholder focused ICT and agriculture supply chain studies in three countries:
- mangoes and pomegranates in India
- jute and potatoes in Bangladesh
- rubber and pineapple in Sri Lanka

A Perception (beyond the actual) of lower quality leading to lower price
Smallholder Challenge

Å Overcome quality constraints (real and perceived) to integrate on more favorable terms
Smallholder Quality Penalty

Å A financial penalty imposed on the smallholder by the first handler of the produce
Å This amount is collected by the first handler
   ï to be used, in total or part, if called upon by the second handler downstream to compensate
Å SQP
   ï Not only between smallholder and first handler but can exist at every transaction throughout the supply chain
SQP continued; no SQP
SQP continued; **SQP transfers**

Smallholder quality penalty is this amount that is transferred from the producer (farmer) to the consumer (collector).
SQP with an inelastic supply curve

More inelastic the supply curve, less deadweight loss and transfer mostly to consumer

- Already harvested and brought to collector
- Perishable; lack of storage if non-perishable
- Low mobility (take to another market)
How the smallholders see the SQP

Â Mangoes in India
  ï “Whether or not we follow good post harvest methods like de-sapping, washing and drying they manipulate grades and deduct for wastage”

Â Jute in Bangladesh
  ï “They take 2-4kg from 40kg bundle to makeup for possible loss in selling down the chain…”

Â Rubber in Sri Lanka
  ï “Even though we have produced RSS 3 grade sheets, they categorize as RSS 5”
Perceived quality

Â Quality (ISO): The totality of attributes and characteristics of a product (or service) that contributes to its ability to satisfy specific or implicit requirements

- Extrinsic and intrinsic
- Search and experience
- Credence
Reducing the subjectivity in perceived quality

Å Standardization
  ï Need to introduce and implement standards and communicate downstream
  Ñ Neither easy nor cheap.

Å Trust
  ï Two-way construct. Must be developed internally and grow over a period of time
  Ñ Greater frequency of interaction between smallholder and collector; greater trust
Using **ICT** to reduce SQP

- Communicating standards and adherence up and down the supply chain
  - Traceability to implement standards
- Build trust through more frequent, accurate and cost effective communication
  - Significant improvements in information and knowledge flows
- Only possible now because of the ubiquitous mobile phone
In differing market structures

Å Disaggregated smallholders
  ï Atomistic market
Å Out-grower or contract farming model
Å Smallholder farmer association (structured format)
Disaggregated smallholders

Atomistic markets

- Large number of smallholders; exogenous to the supply chain and collectors
  - In reality more of an oligopsony structure with limited number of buyers (first handlers)
- Smallholders have very little power, SQP applied and fully exposed to downside risk
- Very difficult to effectively communicate ‘better quality’
Out-grower schemes (top-down)

Ă Purchasing entities down the supply chain create larger entities upstream
   ķ The smallholder is endogenous, or inclusive, and cannot be ‘seen’ from the outside
   ķ Authorized representative of the processor enters in to agreement with smallholder
     ľ Transactions governed by rules by the upstream entity
     ľ Participants along the supply chain are protected, to the extent possible, from market risks (shared)
   ķ Possible to communicate ‘better quality’, build trust and adherence to agreements and standards
     ľ ICT solutions are implementable along the administrative structure; traceability
     ľ Processor agent can keep smallholders in the system via incentives
Smallholder farmer associations
(bottom up)

- Maintaining individual ownership of assets but yield control of processes of production and marketing to the association
  - The *smallholder is endogenous* and cannot be ‘seen’ from the outside; it is the *collective* that has to be dealt with
    - Members are *bound by internal rules*, regulations on produce quality determined by the association; *binding quality benchmarks*
    - A common problem is of *free-riders*; those who benefit from being in the association but do not contribute to the common objectives
  - Difficult to keep together; politicization. Leadership.
  - Possible to communicate ‘better quality’, built trust and address the free-rider problem via ICT solutions
    - Also ‘binds the virtual organization together’
Summary

Smallholder Quality Penalty blocking the movement towards improved efficiency and greater inclusivity in smallholder agriculture

Can use ICT solutions to communicate adherence to accepted quality standards, to build trust and avoid free-rider problems as market structures move from atomistic to out-grower and smallholder farmer association models

Now possible with simple solutions on the ubiquitous mobile phone; even more efficient solutions with the adoption of mobile 2.0 MTV services with inexpensive smart phones (PDAs and the like)
For more information:
www.lirneasia.net/projects/agriculture
search term: Agriculture, KBE