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Energy Based Upgrading in Agricultural Value Chains

The Example of Rice Farming in the Philippines

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Introduction: Microfinancing MSME promotion in complex agricultural markets

Market specifics



Producer Specifics



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Product Specifics



- Perishable, biological raw materials
- Variability in quality
- Seasonability of production
- High dependency of climatic factors

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Systemic value chain theory: The structure of a market system is the source of its behaviour

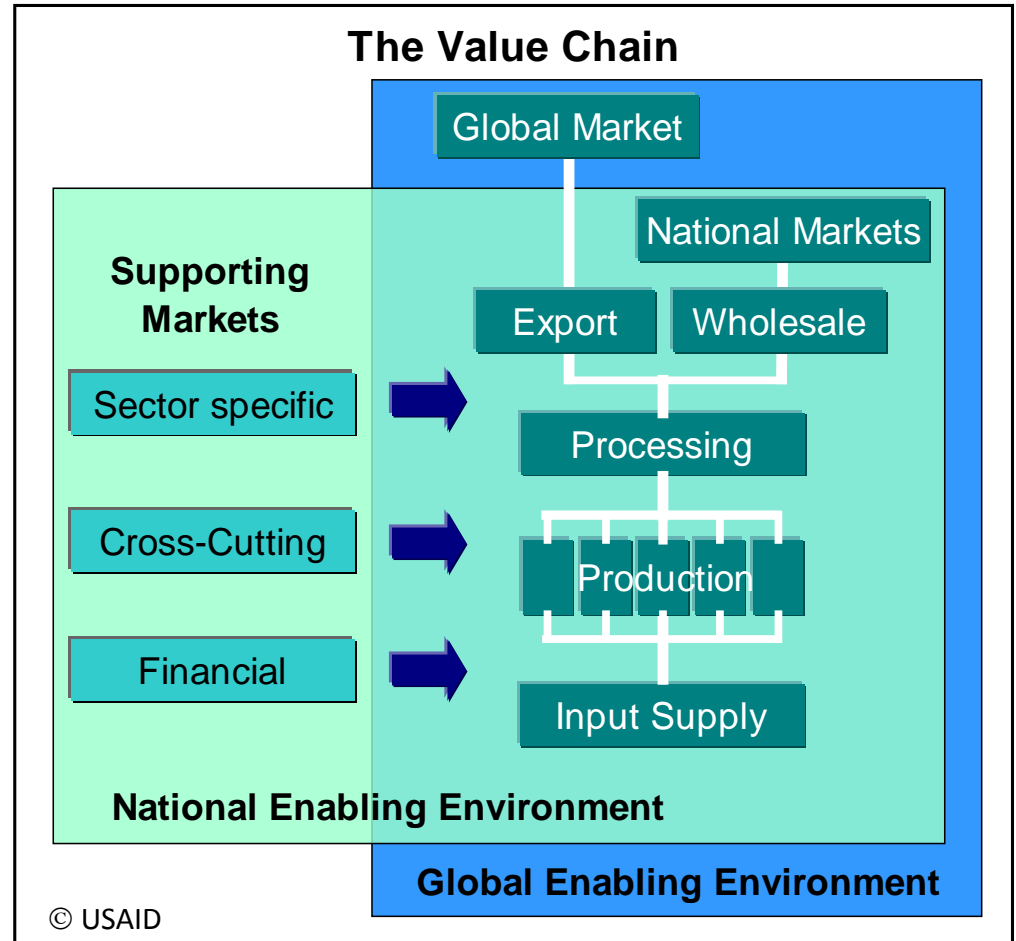
Value Chain Structure

- Market actors
- End-markets
- Enabling environment
- Supporting markets
- Inter-firm cooperation

Linkages

- Finance and products
- Information
- Services

... causes the chains behaviour

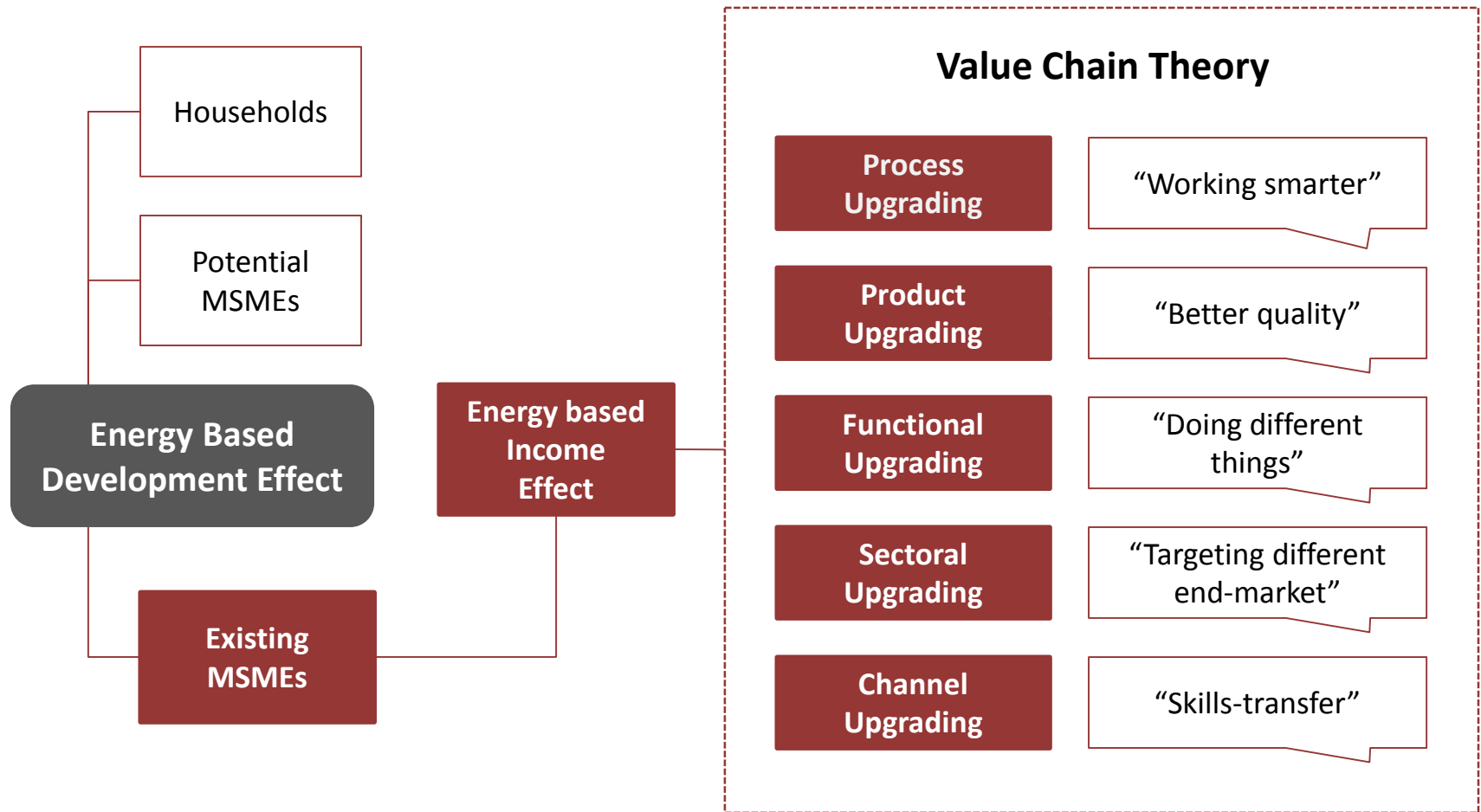


Different approaches? Productive use of energy and value chain theory

- **Upgrading:** Implementing an innovation that increases the value added to a good or service
- **PU of energy:** Utilization of energy either directly or indirectly for the generation of income or value

Every PU energy project with MSMEs can be interpreted as a value chain upgrading attempt

Energy based development effects on households and MSMEs



Some examples that link energy technologies and different upgrading types

Energy Technology	Energy Service	Improvement	Upgrading Type
Energy efficient refrigerator	Cooling	Reduced (post harvest) losses	Process upgrading
Solar Tunnel Dryer	Drying	Improved quality of agricultural goods	Product upgrading
Energy efficient electric vehicle	Mobility	Ability to bridge exploitive middlemen	Functional upgrading
Solar home system (SHS) to provide energy for internet access	Information	Ability to respond to changing market conditions	Channel upgrading

Market-based prerequisites



Starting point of case study: Comparing baseline scenario and assumed benefits of intervention

Baseline scenario



Energy based intervention



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- **Assumption:** Rice farmers can translate access to solar based drying technology to income increases sufficient for credit financing
- **Problem:** How to design a project in a way that income effects are maximized?
- **Question:** How does the value chain context limit the feasible design space?

Which methodological approach has been applied during the field mission?

Research approach was an evolutionary learning process

- **Original approach:** Quantitative questionnaires and narrative interviews based on guidelines
- **Problem:** Unrewarding due to unrealistic assumptions
- **Actual approach:** Qualitative, explorative interviews with value chain internal market actors and value chain external experts
- **Number of conducted interviews:** 48



Structural Element A: End-market conditions

“I Think the end-market question is the biggest challenge in doing microfinance projects in the agricultural sector“

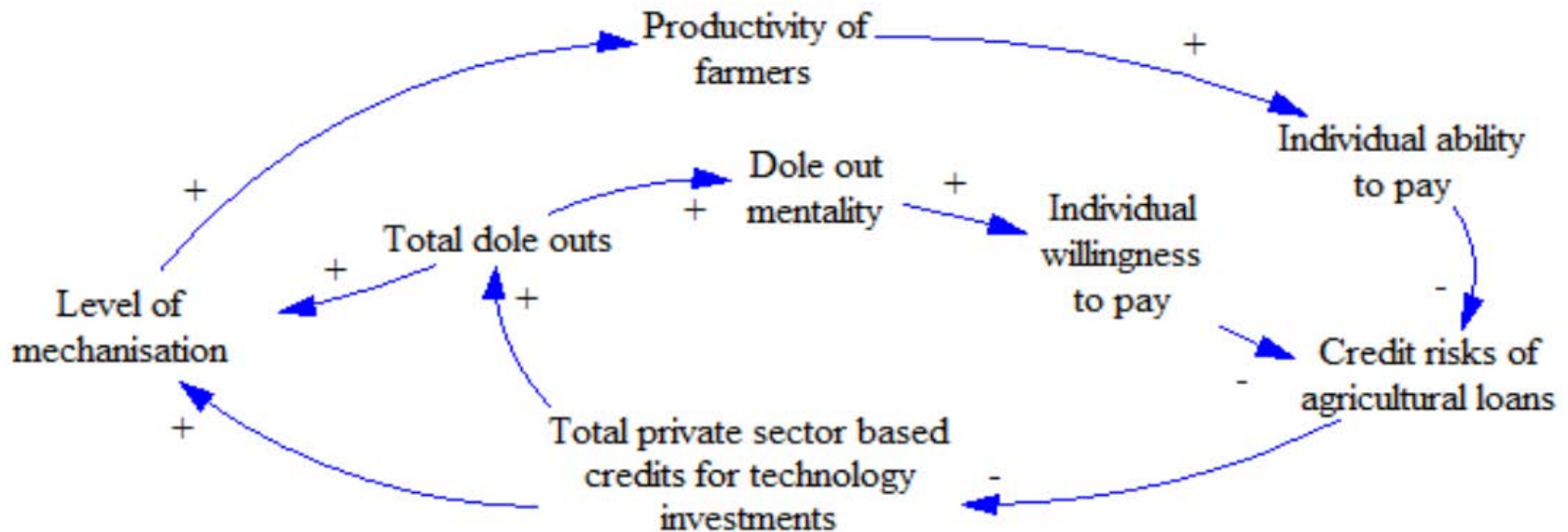


- The palay end-market defines quality, quantity, timing and price
- Different market segments have a different notion of palay quality
- For that reason, different prices are paid for the same product

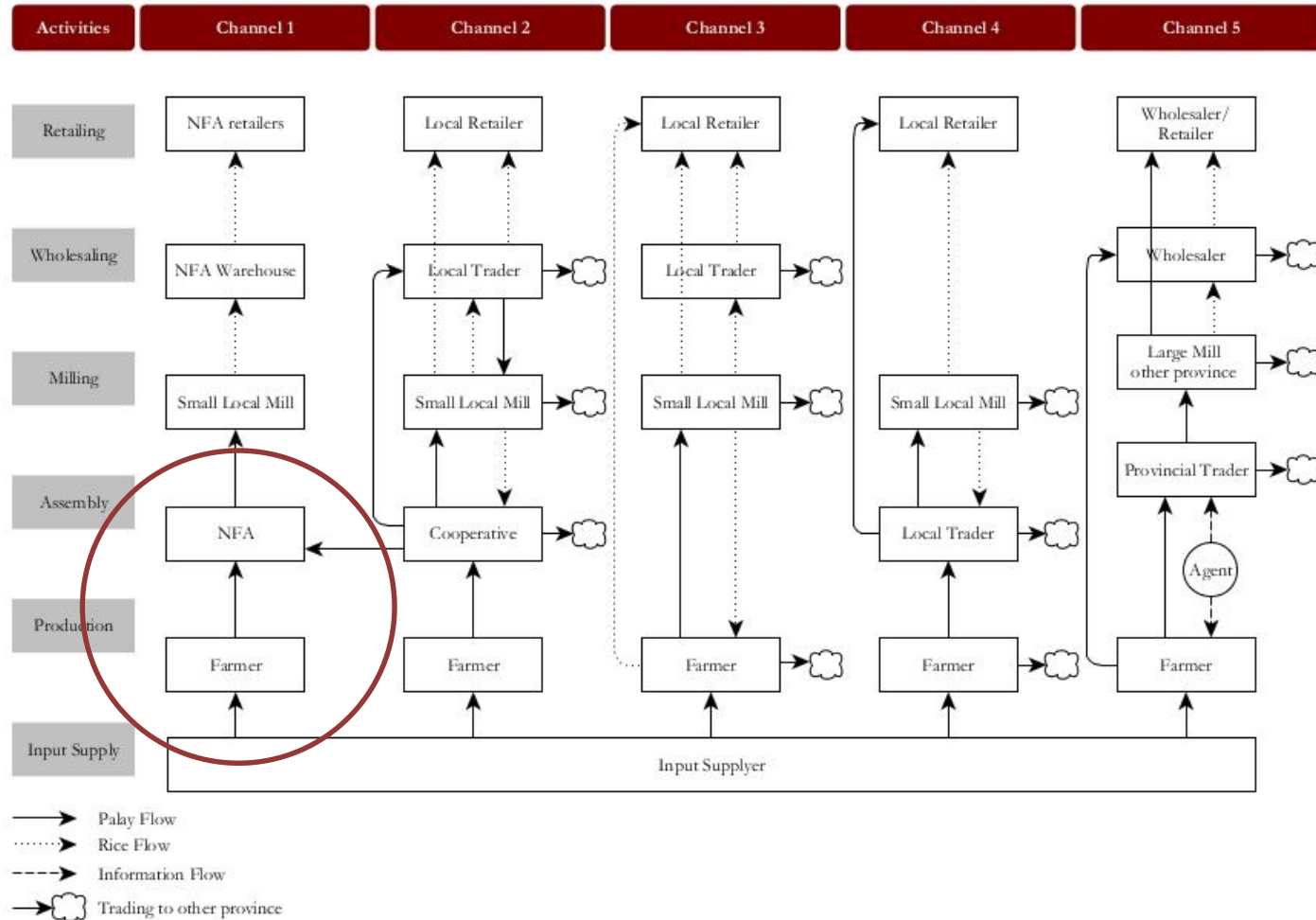
- 1. National Food Authority** – differentiated and transparent payment scheme
- 2. Local Buyers** – undifferentiated and intransparent payment mainly based on wet and dry
- 3. Palay buyers supplying institutional markets** – high standards, differentiated payment schemes, high volumes

Structural Element B: Enabling Business Environment

“Because of the dole out mentality, people tend to loose commitment. They don't bother on paying back because its already grant. They don't struggle to produce more and get additional revenue from their produce and pay back”



Structural Element C: Inter-firm linkages



Structural Element C: Inter-firm linkages

“There are a lot of farmers that want to sell to the NFA, but because of the high standards of the NFA, they are not able to. They are very strict with their standards, and farmers are usually not able to stick to that”

In theory the NFA applies a payment scheme that financially acknowledges quality alterations, but...

- The NFA is a governmental institution and therefore prone to all dole out related problems
- Quality standards and complicated bureaucratic processes of the NFA constitute high transaction costs
- Research indicates that the NFA, despite opposite official statements, does not necessarily pay immediately

Structural Element D: Supporting services

“Even though they ask for a loan from ASKI, they also ask for a loan from input suppliers or their buyers. That is very common in the Philippines”

“You have to consider indebtedness beyond the normal term of indebtedness”

- Marginalized farmers usually excluded from the formal banking system
- Agricultural production investment intensive activity with returns only realized at the end of each cropping season
- Finance gap filled by informal financial services, usually characterized by high interest rates
- Though public perception of these services quite bad, informal money lenders are filling a finance gap and are critical for the functioning of the market

Conclusion

- Conceptualization of PU of energy projects with the aim of MSME promotion as upgrading attempts provides a **new viewpoint on PU of projects**
- From this perspective, it's the **value chain system that poses an opportunity to invest** into energy
- Energy projecting the importance of the market context risk to **a priory limit their space of interventions** to those located within the borders of the firm system
- **Problem-centred value chain approach applicable as risk management tool** energy projects based on microfinance mechanisms aiming at MSME development
- **Gathered data can be further utilized to develop financial solutions based on the value chain finance approach and its related finance tools**

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Thank you!