Developing value–chain linkages to improve smallholder cassava production systems in Vietnam and Indonesia

2016 Activity Report
February 2017

Objectives

1. **Assess opportunities and constraints for smallholder production and** marketing of cassava within different value chains

2. Increase the adoption of improved cassava production and processing technologies by strengthening linkages between primary value–chain actors (farmers, traders, processors) and with support actors (researchers, government agencies, industry bodies)

3. Develop policy recommendations and facilitate learning alliances for the development of a sustainable cassava industry and improvement in rural livelihoods through improved agribusiness arrangements

Objective 1 — Assess opportunities and constraints for smallholder production and marketing of cassava within different value chains

1.1 Understand the macro–level drivers for the development of the cassava industry including changing market and policy arrangements for cassava (starch, feed, chips) and subtitutes (e.g., maize, potato, and sugar) and the potential benefits and risks to actors

1.2 Conduct training in value–chain methodologies, economic analysis and gender analysis

1.3 Map the relationship between primary value–chain actors and supporting services in different agro–economic settings, including how information moves along the value chain and how benefits are shared

14. Conduct a diagnostic analysis of current cassava production systems in different settings, including adoption of varieties, management of planting material, soil and nutrient management, pest and disease management, intercropping, labour utilisation by gender, and farm–level risk

1.5 Assess the impact of alternative agribusiness arrangements on the flow of information and materials and the distribution of benefits within and between cassava–producing communities, with particular focus on poor households, ethnic minorities, and women

Objective 2 — Increase the adoption of improved cassava production and processing technologies by strengthening linkages between primary value−chain actors (farmers, traders, processors) and with support actors (researchers, government agencies, industry bodies)

2.1 Conduct training in improved cassava practices, demonstration trials, and participatory research methods, including public sector extension services (where present)

2.2 Conduct participatory evaluation of new varieties, soil and nutrient management, pest and disease management, and intercropping with farmers and industry stakeholders, with a focus on short− and long−term economic impacts

2.3. Identify opportunities for on−farm improvement and commercial production of clean planting material

2.4 Investigate opportunities to communicate information on pest and disease management to farmers through value−chain actors

2.5 Conduct participatory evaluation of soil management practices (including intercropping)

Objective 3 — Develop policy recommendations and facilitate learning alliances for the development of a sustainable cassava industry and improvement in rural livelihoods through improved agribusiness arrangements

3.1 Understand existing local and national policies and priorities and implications for scaling out research outcomes

3.2 Facilitate dialogue between stakeholders (industry associations, government policy makers from key departments, farmers and researchers) to inform provincial planning and policies aimed at supporting industry development and smallholder livelihoods

3.3 Promote learning alliances between national partners and industry associations to share lessons from the project and inform national policy

3.4 Develop policy briefs based on the project that have relevance to smallholder commodity production within the Southeast Asian region

3.5 Facilitate a Southeast Asian workshop on opportunities to support smallholder livelihoods and improve cassava value chains

Project activities

1. Preparation Meeting: Nov 2015
2. Scoping study
3. Field Experiment: Variety trial Nov. 2015
4. Inception Meeting: August 2016
5. Value Chain Training: August 2016
6. Value Chain analysis: August and October 2016
7. Farmers' Field day: October 2016
8. Field Experiment 2017: (1) variety trial; (3) cropping system; (3) variety adoption

1. Scoping study

- Objectives
1. Determined location for the research
2. Determined the target research partners and research participants

Results:
1. The research is done at: (1) Maumere regency, East Nusa Tenggara; and (2) Pematang Siantar regency, North Sumatra.
2. The research partner for East Nusa Tenggara are Agriculture services and the University of Nusa Nipa, and the research partner for North Sumatera is Agriculture Service.
3. The participants for the research are cassava farmers, trader, and Cassava processor. The main participant cassava processor in East Nusa Tenggara is PT. Mitco, and in North Sumatra is PT Bumi Sari Prima

Field Experiment (2015)

- In both district the field experiment done was variety Trial
- The variety tested in the experiment were:

1.1. East Nusa tenggara:

- UB 1772   - Gajah
- UB ½   - Aldira 4
- Faroka   - **Sika putih**
- Mentega   - **Sika Kuning**

1.2. North Sumatra

- UB 1472   - Gajah
- UB ½   - Kaspro
- Faroka   - Cecek Ijo
- Malang 6   - Kejab
- Aldira 1   - **Malaysia**
- Aldira 4   - **Cikaret**

Field Experiment : East Nusa Tenggara

Field Experiment (result): East Nusa Tenggara

Due to uncertain rain, the cassava cannot grow well. However, the measurement from individual crops (means of 10 to 20 plants), the yield obtained by the tested variety was:

    1. Faroka : 4.2 – 6.3 kg/plant

    2. UB-1472: 3.5 – 5.2 kg/plant

    3. UB ½: 3.5 – 5.5 kg/plant

    4. Mentega: 3.5 – 5.5 kg/plant

    5. Tambak Udang: 3.5 – 6.4 kg/plant

    6. Gajah: 5,4 – 8,9 kg/plant

    7. Sika Putih (local): 2.1 – 3.6 kg/plant

    8. Sika Kuning (local): 2.1 – 3.6 kg/plant

Field Experiment : North Sumatra
(6 months after planting)

UB 14-72   Malang 4   Faroka

Field experiment (results) : North Sumatra

Genotypes	Number of root	Root diameter	Root length	Weight of root (kg)	
		.... cm		Plot net (3m x 3m)	Hectare conversion
UB1/2	9	6.5	30.9	35.2	38,720
UB1472	8	5.9	29.9	32.5	35,750
Adira-1	10	6.4	28.1	33.0	36,300
Malang-4	13	8.0	28.9	45.3	49,830
Cecek Ijo	9	5.0	27.6	17.4	19,140
Farsem	13	6.0	41.5	37.9	41,690
Gajab	10	5.9	31.0	28.6	31,460
Kejab	9	5.8	31.1	18.7	20,570
Caspro	10	6.0	31.3	25.3	27,830
Malaysia (lokal)	12	6.3	30.9	37.3	41,030
Adira-4	12	6.1	31.1	24.9	27,390
Cikaret (lokal)	10	6.3	30.6	23.6	25,960

UB 1472- North Sumatra

FARMERS' FIELD DAY, NORTH SUMATRA (Oct 2016)

FARMERS' FIELD DAY, NORTH SUMATRA (Oct 2016)

FARMERS SELECTION

Genotypes	Indigenous Criteria Selection							
	Yield	Branch	Easy harvest	Root size	Root type	Plant height	Starch	Total score
UB1/2	3	2	5	3	5	4	B	20
UB1472	3	2	4	3	4	4	B, C	20
Adira-1	1	2	3	2	3	3	B, C	14
Malang-4	5	5	5	5	5	5	B	30
Cecek Ijo	3	3	4	3	5	3	C, D	21
Farsem	3	2	3	2	4	3	B, C	18
Gajab	2	3	2	3	2	2	B	14
Kejab	3	2	3	3	3	3	B	17
Caspro	4	3	4	3	4	4	B	22
Malaysia	4	4	4	4	4	4	B, C	24
Adira-4	4	3	4	4	4	3	C, D	22
Cikaret	3	4	3	3	3	4	C	20

1 = very bad, 2 = bad, 3 = moderate, 4 = good, and 5 = very good. Starch content based on factory criteria October 26, 2016 A = 22%, B = 18%, C = 14% and D = 10%.

Inception meeting

- Objectives:
1. Refreshment of the understanding of the research project
2. Learning the cassava farming conditions, especially in North Sumatra and East Nusa Tenggara
3. Designing the further project ativities

. Paricipants: Reseach project members, cassava researchers from UB and ILETRI

Training in value–chain methodologies, economic analysis and gender analysis

- Objectives: To familierize the research project members with Value chain assessment method.

- Instructurs: Prof. Rob Cramb, Dr. Dominic, Dr. Jonathan

- Cunterpart: Dr. Suhartini, Mrs. Ruly, Mr. Yudi Widodo

- Participants: 25 persons from UB, ILETRI, Agric. Service Sika District, Agric. Service Pematang Siantar District, Univ. Nusa Nipa Maumere, UNITRI, UNIDHA, UNISMA, and UMM Malang.

- Outcome: The understanding of Value Chain Assesment Methodology

Value Chain Assesment

- Objectives:

1. Understand the macro–level drivers for the development of the cassava industry .

2. Map the relationship between primary value–chain actors and supporting services in different agro–economic settings, including how information moves along the value chain and how benefits are shared

3. Conduct a diagnostic analysis of current cassava production systems, including adoption of varieties, management of planting material, soil and nutrient management, pest and disease management, intercropping, labour utilisation by gender, and farm–level risk
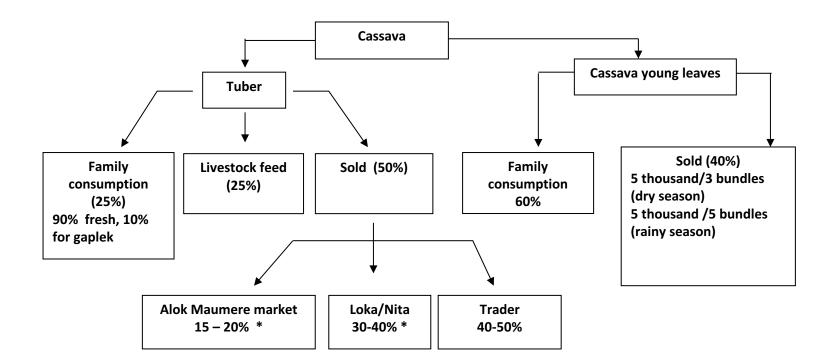
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FGD AT EAST NUSA TENGGARA

Some results of Value Chain analyisis

Cassava Production system in East Nua Tenggara

- Objectives of cassava farming: as alternative food crop and animal feeding
- Utilization: food, animal feeding, sold
- Crooping systems: mostly planted with maize, planted in very wide spacing (4-8 m x 1 m)
- Seedling: obtained from the previous crops
- Variety: what available on site (mostly Sika putih and Sika kuning)
- Land preparation and planting: manually, some by tractor
- Fertilizers (and capital): farmers
- Harvesting and trading systems: Some farmers sold to the markert, and in some places trader come to the field
- Limitation:
  1. variety is very limited
  2. Limitation in capital
  3. dificulty in getting fertilizers
  4. The price is very fluctuated
  5. Limitation in the utilization of cassava
  6. Limitation in marketing

SOME RESULTS OF VALUE ASSESMENT

- East Nusa Tenggara


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                          Cassava
           ┌─────────────────┴──────────────────────────┐
           ▼                                             ▼
        Tuber                                   Cassava young leaves
   ┌──────┼──────┐                           ┌──────────┴──────────┐
   ▼      ▼      ▼                           ▼                     ▼
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| Family consumption (25%) 90% fresh, 10% for gaplek | Livestock feed (25%) | Sold (50%) | Family consumption 60% | Sold (40%) 5 thousand/3 bundles (dry season) 5 thousand /5 bundles (rainy season) |

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                          Sold (50%)
                   ┌──────────┼──────────┐
                   ▼          ▼          ▼
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| Alok Maumere market 15 – 20% * | Loka/Nita 30-40% * | Trader 40-50% |

Cassava utilization in Lusitada, Maumere

FGD NORTH SUMATRA

Some report of Value Chain analyisis

Cassava Production system in North Sumatra

- Objectives of cassava farming: as cash crop
- Utilization: 100 % sold to Factory (the main factory PT Bumi Sari Prima)
- Crooping systems: cassava mono culture (1,0 x 0,8 m)
- Seedling: obtained from the previous crops
- Variety: what available on site (mostly Malaysia and Cikaret)
- Land preparation and planting: mechanization (tractor); land preparation until planting was done by the third party (the cost was about 2- 4 millions/ha; include the seedling)
- Fertilizers (and capital): traders (as the second man of the factory) provide the fertilizers (NPK), and in some cases also capital for growing cassava
- Harvesting and trading systems: When cassava is already mature, trader harvest the cassava, transport to factory. The factory paid based on the cleaned of the roots. Farmers paid the cost for harvesting and transporting the root to factory.The traders get the fee based on the numbers of the roots (rp../kg)
- Limitation:
  1. variety is very limited
  2. Limitation in capital
  3. dificulty in getting fertilizers
  4. The price is very fluctuated
  5. Limitation in the utilization of cassava

2017 ACTIVITIES

- Field experiments
- Farmers Field day
- House hold survey
- Training on cassava growing for farmers
- Study the existing local and national policies and priorities on cassava and agricultural development

Field Experiment

- North Sumatra

    - Varieties testing on farmers land

    - Cropping sytem

- East Nusa Tenggara

    - Varieties testing

    - Cropping system

North Sumatra, 2017 field exp (1 months)

2017 Field Experiment: East Nusa Tenggara

2017 East Nusa Tenggara field Experiment: Plotting, planting , and plant condition 2 weeks after planting

2017 East Nusa Tenggara field experiment: 0ne month (left, above) and the other are 2 monthn old

Farmers Field day

- Will be conducted in March or April 2017
- This activity will be followed by the training of cassava growing for farmers in both side

House Hold Survey

- Will be done in April 2017
- Survey will be done in several sub-district (3 - 4) in both site of East Nusa Tenggara and Noth Sumtra
- The survey will be done together with the local partner (Agric. Service and the University)