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vegIMPACT

Assessment of horticulture product and market development

vegIMPACT PMC interventions in Java and Sulawesi

Christine Plaisier, Youri Dijkxhoorn, Junike Medah and Huib Hengsdijk

vegIMPACT
Improved Vegetable Production and Marketing for small farmers to Increase the Food Security status and to promote Private Sector Development in Indonesia

vegIMPACT is a program financed by The Netherlands' Government promoting improved vegetable production and marketing for small farmers in Indonesia, contributing to the food security status and private sector development in Indonesia. The program builds on the results of previous joint Indonesian-Dutch horticultural development cooperation projects and aligns with recent developments in the horticultural private sector and retail in Indonesia. The program activities (2012 – 2016) include the Development of Product Market Combinations, Strengthening the Potato Sector, Development of permanent Vegetable Production Systems, Knowledge Transfer and Occupational Health.

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- *Applied Plant Research (APR), AGV Research Unit Lelystad*
- *Centre for Development Innovation (CDI), Wageningen*
- *Plant Research International (PRI), Wageningen*
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1. Introduction

1.1 Background

The vegIMPACT program, short for 'vegetable production and marketing with impact', aims to improve vegetable production and marketing of smallholder farmers in Indonesia. As such, VegIMPACT contributes to increased food security and private sector development in Indonesia. The Dutch government financed the programme and it was implemented by Wageningen University and Research Centre (WUR) together with local partners and national and international companies in vegetable production and marketing (2012-2017).

VegIMPACT consists of different intervention strategies formalized in various Work Packages (WP). In the WP Product Marketing Combination (PMC) the intervention was focused on the development of pilots implemented with partners in the value chain (VC), including smallholder farmers who started to produce vegetables in a coordinated way and according to specific market demands. The intervention introduced an innovative market approach for existing products or new products to an existing market (upgrading of the VC). In total ten PMCs have been initiated in different parts of Indonesia to support the commercialisation of small farmers.

As part of the overall vegIMPACT program, one WP focussed specifically on the evaluation of training activities (WP Monitoring and Evaluation, WP M&E). Based on a conceptual framework, the WP M&E assessed whether training activities in vegIMPACT have changed the behaviour of trained farmers towards GAP and associated performance indicators. Many of the performance indicators such as higher crop yields and improved crop income and profit have been defined at program level to assess the contribution of WP activities in vegIMPACT to food security and private sector development in Indonesia.

1.2 Objective of the report and reading guide

In this report, we describe, assess and reflect on the interventions carried out within WP PMC between 2013 and 2016. All insights are based on independent data collection among a range of stakeholders involved.

Every PMC is a project in itself (i.e. different crop, region, stakeholders and VC) and Indonesia is a diverse country with many different cultures and local practices. What works in one region of for one farmer, does not automatically work in another region and for another farmer. Still, there are some overarching (key) lessons to be learnt and common drivers and barriers for developing successful inclusive supply chains.

During the implementation of the ten PMC pilots, the vegIMPACT PMC team acquired knowledge and experience on connecting small farmers to markets. However, they were also confronted with the challenges faced by supply chain partners and the recurring aspects that appear to contribute to the success – or lack of success - of the PMCs in connecting farmers with markets.

The general problem analysis underlying PMCs is presented in Chapter 2, which also describes the PMC intervention and the (selection of) trained farmers. The Theory of Change (ToC) and the

result levels are elaborated in Chapter 3. For the assessment of the results of the training, we have used different data types and data sources, which are described in the Chapter 4 (Approach and method). Chapters 5 gives an overview of the results. Chapter 6 reflects on the results, used M&E methods and synthesizes the conclusions. Finally, we provide in Chapter 7 recommendations for market-orientated interventions in the future and for an appropriate evaluation approach.

2. The intervention

2.1 Problem statement supply chain

One of the key problems in Indonesian horticulture is that farmers lack direct linkages to modern and international markets and miss various skills to seize emerging market opportunities. Traders and retail on the other hand lack a stable and continuous supply of produce to meet consumer demand. The PMCs have facilitated the link between farmers and the market. As a result, market opportunities have been leading for the product and stakeholder selection of the different PMCs. Figures 2.1 and 2.2 reflect the problem analysis conducted at the start of the PMC intervention. These problem trees were the point of departure in the PMC design.

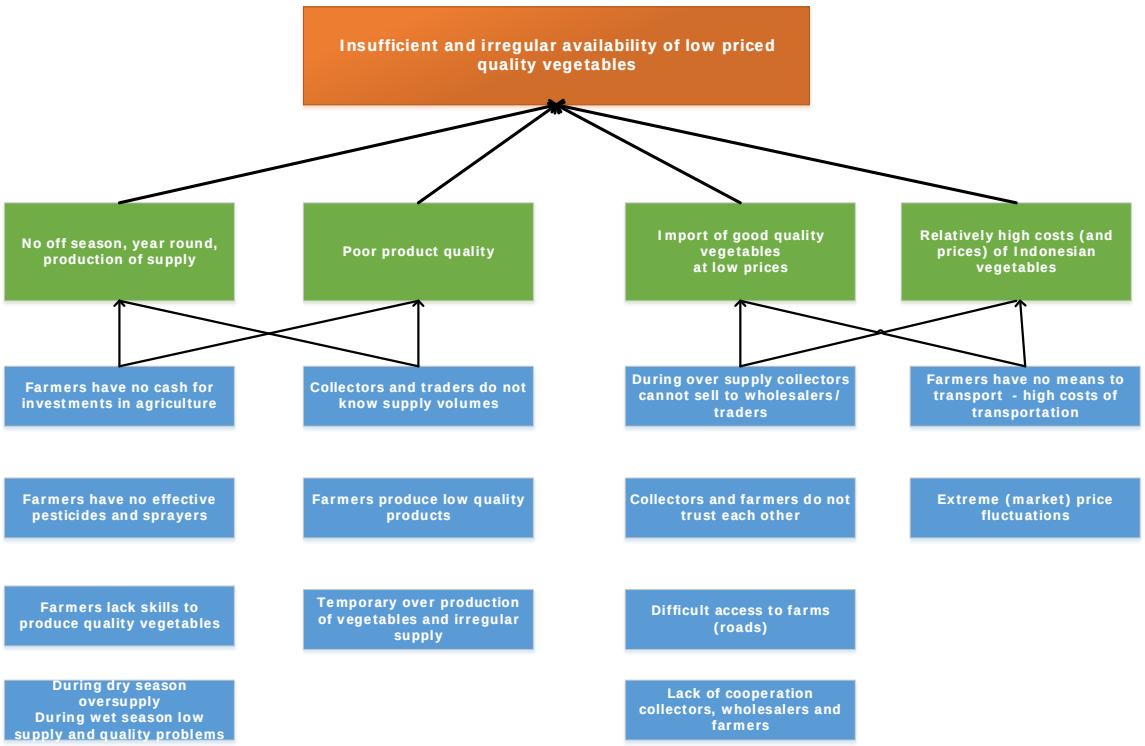


Figure 2.1 Problem tree for the insufficient and irregular availability of low-priced quality vegetables from farmer perspective.

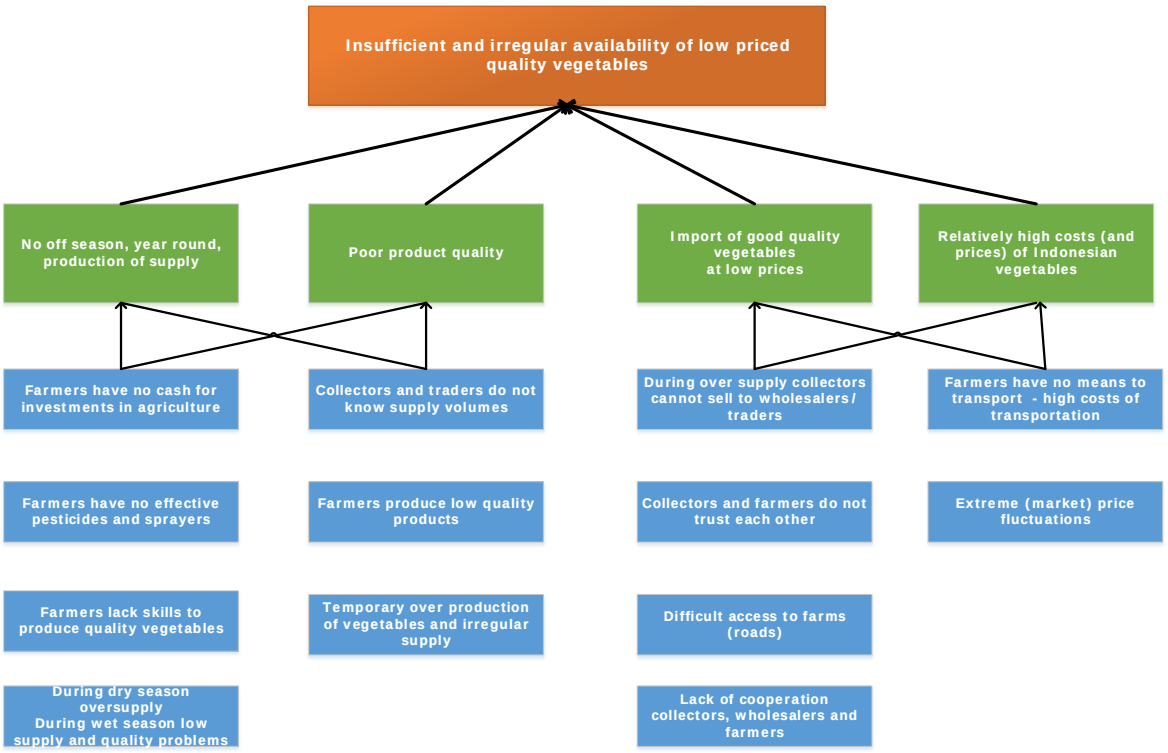


Figure 2.2 Problem tree for the insufficient and irregular availability of low-priced quality vegetables from trader perspective.

2.2 PMC solution

Within the vegIMPACT program, a PMC is a pilot implemented with partners in the VC including smallholder farmers (< 2 hectare), who produce vegetables in a coordinated way and according to specific market demands. A PMC contains innovative VC upgrading aspects, for example the use of improved varieties, a new marketing concept, packaging materials, branding of the vegetables or the supply chain configuration itself. In a PMC, VC partners make mutual arrangements to upgrade existing market linkages or to create new market opportunities. PMC's are considered as a "proof of concept" to show that innovations and cooperation in market-oriented supply chains potentially benefit all supply chain partners and in particular smallholder farmers.

National and international vegIMPACT PMC staff facilitated this process from carrying out initial market surveys; developing business propositions in collaboration with supply chain partners; facilitating the implementation of the supply chain until the marketing of the product.

Farmers and supply chain partners in each PMC were supported by vegIMPACT project staff to improve critical issues in their supply chain such as agronomy aspects, post-harvest issues, organizational weaknesses and marketing. To this end, a pre-project (training) needs assessment and supply chain analysis were conducted by vegIMPACT staff and customized interventions for improvement proposed.

Within the vegIMPACT program, ten PMC's have been developed in five provinces of Indonesia. All PMC's have been reported and the reports are accessible via the www.vegimpact.com. Below a list of the initiated PMC's with a link to the report:

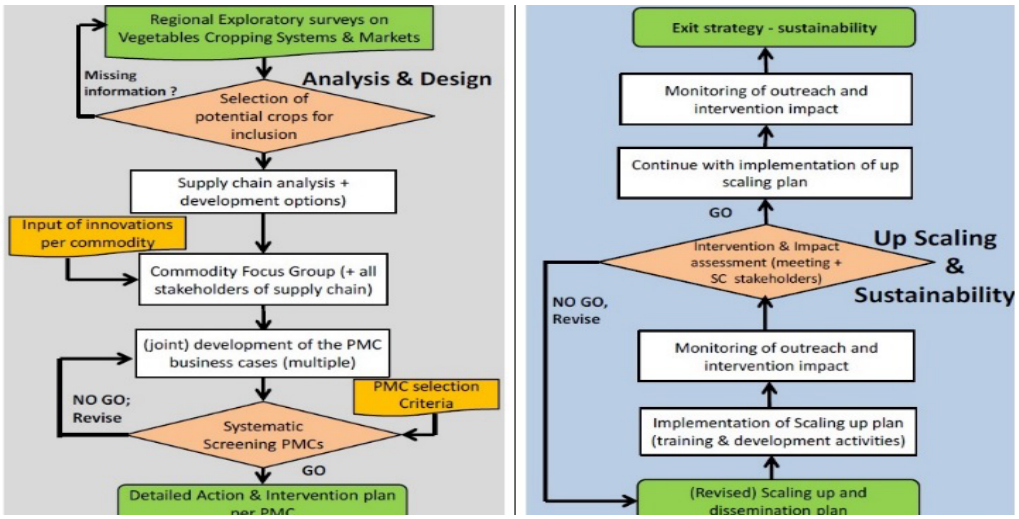
1. PMC hot pepper, Guci, Tegal, Central Java (vegIMPACT report 19)
2. PMC bell pepper, Nongkojajar, East Java (vegIMPACT report 20)
3. PMC shallot, Brebes, Central Java (vegIMPACT report 22)
4. *PMC potato, Garut/Bandung, West Java (*vegIMPACT report 23*)*
5. PMC Tomato, Batu, East Java (vegIMPACT report 25)
6. PMC Tomato, Pacet, Cianjur West Java (vegIMPACT report 25)
7. *PMC Contract farming Berastagi, North Sumatra (*vegIMPACT report 26*)*
8. PMC Carrot, Gekbrong, Cianjur, West Java (vegIMPACT report 29)
9. PMC Carrot, Enrekang, South Sulawesi (vegIMPACT report 30)
10. PMC Broccoli, Enrekang, South Sulawesi (vegIMPACT report 35)

Based on self-assessments the results of all PMCs are reflected upon in PMC reports. As outsiders, the independent M&E team evaluated the PMCs with an open view not hindered by inside information or history. PMC 4 (potato) and 6 (North Sumatra) are not reviewed since the PMC in North- Sumatra stopped halfway due to a volcano eruption and the focus of the potato PMC was on a processor with little involvement of farmers as the 'typical' PMC.

2.3 Three distinct phases in PMC development

The PMC development process consisted of three distinct phases (Figure 2.3):

1. Analysis and design
2. Implementation PMC
3. Up scaling and sustainability



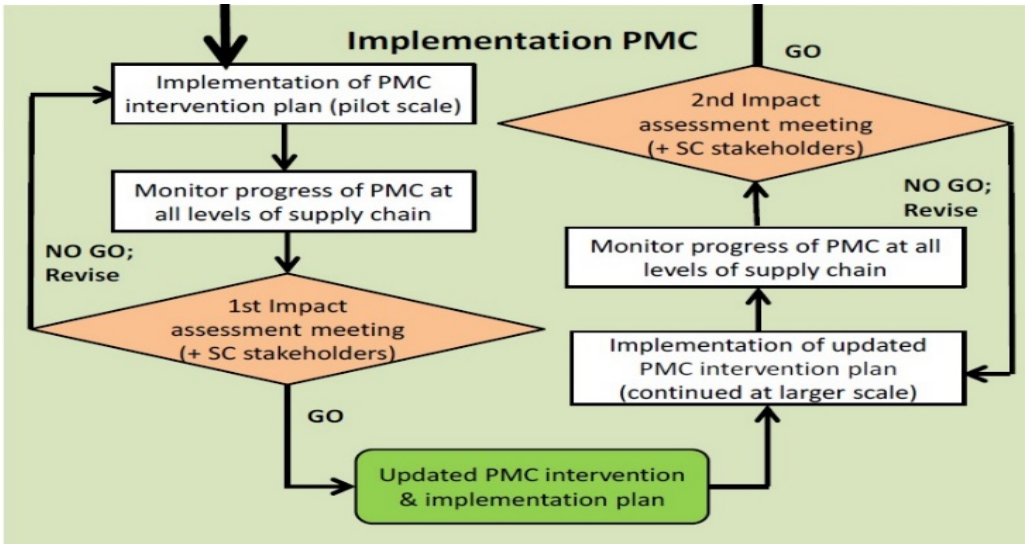


Figure 2.3. PMC development phases.

A PMC cycle includes the following activities (more or less in chronological order):

1. Vegetable specific value chain analysis;
2. VC partners' selection and supply chain formation;
3. Focus group meetings and brain storm session with VC partners on innovations, new marketing channels, new supply chain configurations and market partners;
4. Market exploration and consumers interviews;
5. Zero / base line (pre project) assessment;
6. Implementation, including supply contracts with VC and market partners;
7. Pilot supply chains (PMCs) operations and support, including training of farmers and marketing support of traders;
8. Consumers and VC partners satisfaction surveys and lessons learnt;
9. Post project economic assessment including margins and profitability per VC partners;
10. PMC evaluation with VC partners (focus groups) and feedback;
11. documentation and dissemination activities.

2.4 PMC design

A PMC contains innovative VC aspects, which could be anything from the use of improved seed, until the marketing of the vegetables, packaging materials, a brand name or even the supply chain configuration itself. A PMC can produce for traditional markets, modern street markets or wholesale markets, high-end modern retail, mini markets and other retail markets, export markets as well as the market for processed vegetables. Development and upgrading options per supply chain were explored together with supply chain partners (including traders and input suppliers). Proven innovations and identified market needs were used as input. By the end of the analyses and design phase per commodity and farmer group a detailed action and intervention plan was composed, including a budget and contributions in cash and in-kind per partner. Besides, a customized training plan to support specific PMCs was developed and decided upon together with the partners. Training was provided to farmers and traders and consisted of the following topics:

- Trainings for farmers (e.g. on input use, integrated pest management, harvest and post-harvest handling techniques);
- Production schedule (farmer);
- Strengthening farmer organization / collective action;
- Marketing & (new) branding and labelling of fresh products (trader).

Sustainability

The PMC team considered a PMC sustainable if:

- The PMC is continued by the beneficiaries / actors themselves with a minimum of external support;
- One or more farmers' groups (minimum 15 farmers per group) have individually or as a group earned more money (per month, per m^2 or otherwise) from the production and marketing of PMC products. Thanks to a shorter or more transparent supply chain or lower cost price or higher sales prices; and
- VC partners continue to invest in the PMC and its up scaling and the PMC has become self-propelling (sustainable) without any extra external vegIMPACT (or other donor agencies) investments or support.

Additional features that need to be emphasized with regard to sustainability are:

a) The PMC products are visible in the market and generate publicity; and
b) The PMC product is on the shelves or at the market one year after the end of the vegIMPACT PMC intervention period.

Sustainability is a core criterion for the success of a project. It means that the envisioned change and logic are able to sustain itself and create the envisioned benefits for the actors involved. The PMC team operationalized their understanding of sustainability and worked according to that output. However, the current PMCs were *pilot* projects with a short time span and sustainability

in this context should be considered as potential for sustainability.

2.5 Dissemination PMC lessons

The outcomes of each PMC and different lessons learned are described in various vegIMPACT annual reports and in a final PMC report. All reports are public and can be downloaded via the programmes' website: www.vegimpact.com. After completion of the PMC's, the lessons learned were disseminated by the PMC implementation team and reported in a PMC reflection report (vegIMPACT Report #27). In addition, a number of workshops, trainings, videos and website articles have been made as part of a communication strategy to enable smooth dissemination.

3. Program objectives, indicators and result levels

3.1 Theory of change and scope of influence

The overall objective of the vegIMPACT programme is 'To contribute to the improved food security and improved competitiveness of Indonesian farmers.' Achieving this objective requires that different (i.e. better) agricultural practices are used, more vegetables of higher quality are produced and consumed leading to an improved farm income. Therefore, vegIMPACT proposes a large-scale rollout of training activities on farming practices and market access that have proven to improve production, productivity, quality in a sustainable way. With the implementers of vegIMPACT, a Theory of Change (ToC) was developed at vegIMPACT program level (Appendix I). The success of an intervention depends not only on the way it is implemented and the skills and capacity of implementers but also on the logic of the ToC in the Indonesian context.

The result chain shows how the different vegIMPACT interventions contribute to and result in the planned outputs, outcomes and impact. In the result chain, the various steps in the causal chain are explained and the interrelationships between the activities of the intervention and the resulting outputs, outcomes and impacts are made explicit. The vegIMPACT result chain includes various assumptions about pre conditions and the external environment and institutions. At each result level assumptions are indicated which became clear during the definition of the ToC. As a process, the ToC is continuously subject to change by new insights, learnings and a changing context. Overall, it is assumed that the vegIMPACT interventions and components will lead to an increase in production, an increase in productivity, reduced costs, increased labour opportunities and a reduction of pesticide use (performance indicators). These results contribute to the overarching program goal of food security and private sector development in Indonesia.

Adoption and uptake by the trained farmers is assumed to lead to improved agricultural practices, improved input use with high quality seed and improved practices of planning and control (planting schedules) and market access (collective action and contractual arrangements). These in turn lead to lower production costs, lower pesticide use and higher productivity. The improvements in farming should also lead to higher quality of crops and higher prices. Higher productivity and lower costs in combination with higher product prices lead to increased income at producer level (ultimate outcomes). At impact level, food security is addressed in two ways: First, farmers are stimulated to produce high quality vegetables instead of rice leading to a more diverse supply of nutritious food items for an increasingly urbanizing population. Second, vegetables are high value crops compared to rice, so farmers are able to gain higher incomes contributing to improved food security at farm level.

Not explicitly mentioned but very important are the external conditions, i.e. events, actors or institutions unrelated to the intervention that contribute to the realization of the intended results. These external conditions include other interventions with similar aims, general economic or social trends and changes in policy. For example, a reduction of the price of vegetables can

explain an increase in vegetable consumption that is unrelated to the training intervention. A negative external influence could be a strong and influential PR strategy of a pesticide company or government policy (e.g. subsidizing rice inputs) which is conflicting with the programme objectives.

3.2 Scope of control: Result levels

Desired development effects are the positive result of an intervention for the beneficiaries. The ambition is to contribute to the improved food security and improved competitiveness of farmers. However, to show statistical significant net-effects on these areas are unlikely within the scope of influence of this programme and the available resources. The effects of interventions on improved socio-economic status and food and nutrition security are hard to control for and[1], therefore, definitely difficult to measure, especially in a small sample of beneficiaries per region and in the absence of a comparison group which has not been targeted by the intervention[2]. The evaluation of the underlying intervention therefore focusses on analysing effects of the training on immediate and intermediate outcomes, i.e. the knowledge obtained, practices adopted and productivity levels and perceived benefits. The next Chapter explains further the methodology of data collection along the result chain. Table 3.1 gives an overview of the different result levels and indicators used to verify the contribution of the training to the expected results.

3.3 Performance indicators

A number of performance indicators have been identified during program development in collaboration with the client, the Ministry of Foreign Affairs in the Netherlands. These indicators relate to the outcome level and are based on the ToC. Product Market Combinations aim to contribute to the following vegIMPACT objectives:

1. Increase vegetable productivity (%);
2. Reduce pesticide use per unit product (%);
3. Reduce production costs per unit product (%);
4. Increase financial margins for farmers (%);
5. Reduce occupational health problems and risks; and
6. Increase the availability of private sector products & service.

[1] Improved income does not automatically lead to more household expenditures on (healthy) food consumption.
[2] Because of a limitation of resources.

Table 3.1. Indicators and assumptions at different result levels.

Influence of intervention	Result levels	Result	Description indicators and measurement	Assumptions
High	Outputs	Activities: Training interventions such as information, goods and services delivered to farmers.	Training materials developed, trainers selected, farmer groups selected and assessed, trainings conducted, attendance sheets, research reports	Project is relevant and people need the intervention, project is the right solution for the defined problems, enough resources are available, legal grounds for operation
Medium	Outcomes	The effects and changes that occur because of the intervention, here labelled as immediate, intermediate and ultimate changes. Effects and the consequences of the actions taken by the farmers thanks to the outputs, frequently focus on behaviour changes which become manifest as changes in practices (adoption).		
Medium	Immediate outcome	Enhanced knowledge on cultivation & marketing practices, contracts, continuous supply, and collective action due to the training received	Indicators: appreciation, satisfaction, knowledge shared with others (as indication of relevance and appreciation); knowledge questions on topics of training (e.g. recognition of disease, spraying interval, types of pesticides used)	The right message, people, staff, timing, message is understandable, message is applicable, people want to be trained and willing to learn
Low	Intermediate outcome	Changes in agricultural and marketing practices and group performance thanks to increased knowledge; change in relationship with trader/buyer and contractual arrangements Change in planting schedules providing continuous supply	A. Improved GAPS (planting, pesticides, fertilizer, inputs, harvesting, etc.). B. Improved marketing and grading practices; C. Improved performance of collective action / farmer group collaboration.	People are willing to change, people are willing to take a risk, people are willing to trust the new insights and trainers
Lower	Ultimate outcomes	New variety used, improved yield, quality and income, reduced cost price, decreased pesticide and fertilizer use, reduced occupational health risks, guaranteed market, and price; thanks to adapted agricultural practices	A. Production increases: farmers use high quality varieties of vegetable crops. B. Productivity increases: Thanks to GAP and improved variety, crop productivity increases. C. Total production costs decrease thanks to reduction in pesticide and fertilizer costs. D. Profit increases: production and yields increase and production costs per unit area decrease leading to higher profitability. E. Stable farm income: contract farming (guaranteed market & fixed price)	Proven correct technology, implementation, risks are controlled for, no unintended outcomes constraining the intended outcomes
Lowest	Impact	Improved food and nutrition security[3]	A. Higher crop income of farmers resulting in higher food expenditures. B. More vegetable production results in better availability of nutritious food for non-farming population. C. Healthier vegetable production due to better applied GAP (lower pesticide residue)	Increased healthy vegetable production is consumed locally and financial gains are spent on nutritious foods

[3] Not monitored and evaluated.

4. Approach and method M&E

4.1 Introduction objectives M&E

A systematic evaluation of PMC activities is crucial to demonstrate the level of success, i.e. the effectiveness of the intervention to bring about large-scale adoption of improved techniques and best practices, and to translate learnings in a road map for sustainable vegetable production. The design of the evaluation follows the central question: 'Did we do the right things and did we do the things in the right way?' To be able to do so, the study provides insights in the application of the ToC and the mechanisms at work in (non) achievement of objectives The objectives are twofold: i) accountability and ii) learning: to measure change up to outcome levels and to learn for improvement of future interventions.

4.2 Mixed method applied: survey, interview, focus group discussion

A mixed method approach is applied: a before and after survey is used by the M&E team in combination with focus group discussions (FGDs) with farmer participants and interviews with key stakeholders (i.e. the PMC team, trainers, seed suppliers, traders). A draft survey was developed based on the objectives of the PMC and on the local context. This survey was discussed, refined and customised with the main stakeholders in 2014 and customized according to each PMC. Subsequently, the survey was translated and pre-tested in the field. The baseline survey was conducted at the start of each PMC and the evaluation was done immediately after wrap up of the PMC activities and withdrawal of the PMC team. We distinguished between seasons, as Indonesia knows two seasons per year, a dry season and a wet season. Both are very different in terms of weather conditions, which may affect crop management and crop performance. As such, for production variables, we compare the baseline dry season with the evaluation dry season and the baseline wet season with the evaluation wet season. In general, farmers produce various crops but we focus on the crop of PMC intervention. Data was encoded and entered into a web-based database by the local M&E-team member of our local support office. WUR team members checked for data quality.

The survey (Appendix II) consisted of the following sections:

- General characteristics;
- Farm characteristics;
- Main crop characteristics;
- Production and revenue main crop;
- Agricultural practices & knowledge;
- Market specifics (including grading, sorting, buyer, etc.); and
- Health and personal protective equipment (PPE).

The WUR evaluator involved conducted all the FGD and interviews in collaboration with the local M&E officer. The FGD and interviews were structured alongside the following topics:

- Relevance of the intervention for farmers and trader (i.e. matching their needs);

- Appreciation and satisfaction of the intervention (0-10 score);
- Reflection on the intervention as an instrument and main actors involved;
- Effects of trainings on farmer knowledge and practice (skills and application);
- (Potential) Impacts of intervention (e.g. income of PMC crop, cost price reduction, stable market price);
- (Potential) Sustainability of the intervention and of results; and
- Lessons learnt and recommendations for improvement.

A total number of 138 farmers participated in the baseline and 114 in the evaluation. Panel data (the same farmers in the baseline and the evaluation) was only collected of 67 farmers of eight different PMCs. A number of seven FGD covering six different PMCs took place with in total 51 participants. An additional 18 in-depth interviews were conducted individually among nine participating farmers and nine other relevant stakeholders (Table 4.1). The so-called H-diagram was applied five times in the FGD (Fig. 4.1; Appendix III). The H-diagram is a tool for a structured and participatory discussion to reveal the strengths and weaknesses of an intervention and to discuss on concrete recommendations. For two PMC's, bell pepper in East Java and beef tomato in East Java, it was not possible for the M&E team to collect information through FGD and farmer interviews.

The internal and final PMC reports and studies of similar interventions in low and middle income countries were reviewed in a desk research.

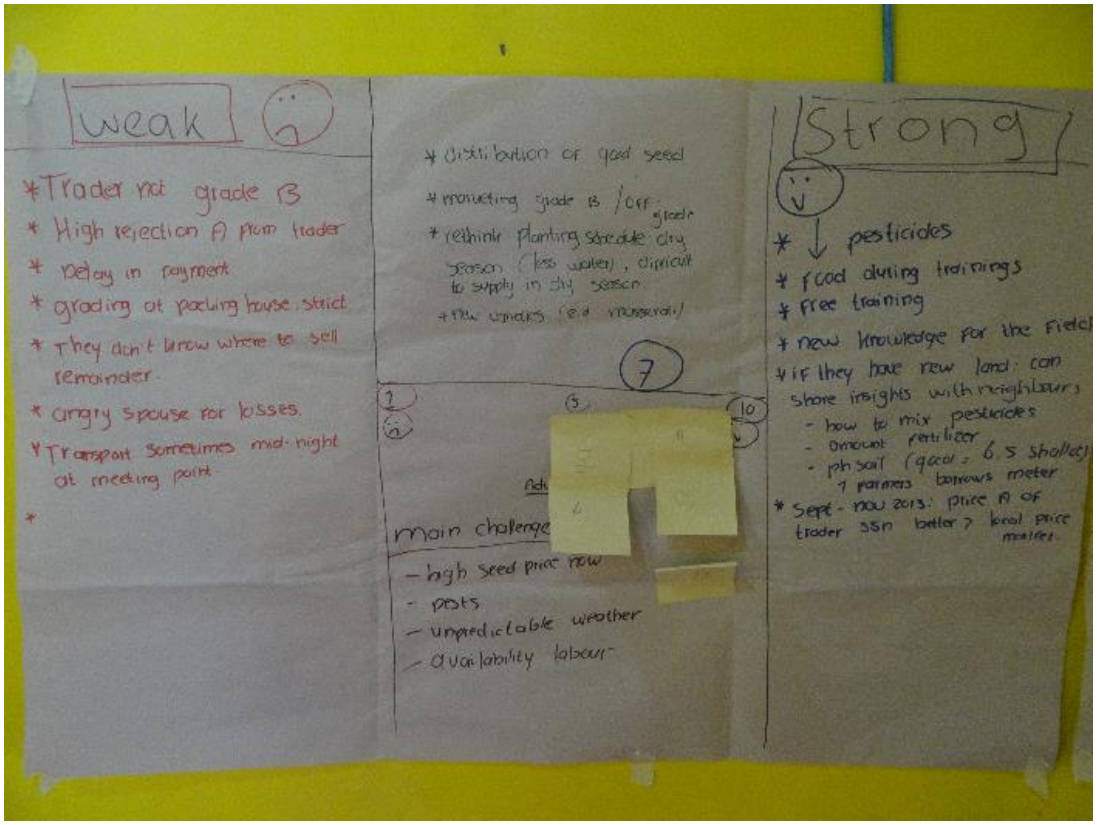


Figure 4.1. Photo of H-diagram during a FGD.

Table 4.1. Information on respondents of quantitative and qualitative data collection.

			Quantitative data			Qualitative data					
#	**PMC type and location**	**Participants**	**Baseline data**	**Evaluation data**	**Panel data**	**FGD**	**H-diagram**	**Score H-diagram**	**Participants**	**Interview farmers**	**Other interviews**
1	Hot pepper, Central Java	13	19	16	2	1	1	7	10	3	2
2	Shallot, Central Java	20	18	15	10	1	1	6.3	7	2	
3	Bell pepper, East Java	15	17	15	9						
4	*Potato processing, West Java*	*4*			*n.a.*						
5	Beef tomato, East Java	15	20	18	7						1
6	*Contract farming Sumatra*	*25*			*n.a.*						
7	Beef tomato, West Java	18	14	14	8	2	1	7.6	11 (6 & 5)	1	1
8	Carrot, West Java	7	12	10	8	1			10	3	1
9	Broccoli, South Sulawesi	22	17	12	11	1	1	8.6	14		2
10	Carrot, South Sulawesi	17	21	14	12	1	1	7.9	10		2
Total		**156**	**138**	**114**	**67**	**7**	**5**	**7.5**	**51**	**9**	**9**

4.3 Data analysis

Using Access software, all data was downloaded from the online database after which cleaning and analysis took place with the statistical software STATA in 2017. In the design, we planned to analyse and present the results based on the logic of the intervention: output level (the concrete results forthcoming from the activities), the immediate outcome (knowledge obtained), the intermediate outcome (knowledge and lessons applied) and the ultimate outcome (productivity, production costs, earnings and margin). As all PMCs are unique and the intervention crops were different per PMC, we decided to report at PMC level. However, there were some complications with the quantitative data obtained from the surveys. After data analysis it turned out that the respondents in the baseline and end line differ in number of observations and composition. There has been a high turnover in participants, i.e., farmers that dropped out during the PMC were replaced with new farmers. Not only the depth of support differed per participant but also no baseline survey was conducted among the participants who joined the PMC at a later stage. In

addition, there were many missing values for the performance indicators of interest such as yield, area size, production costs and earnings. Not all farmers could remember the exact details and figures of their production and marketing. In addition, the PMC farmers planned harvesting through a joined crop schedule. The M&E officer was not always aware of the exact harvest dates of each farmer and in some cases the evaluation was conducted before the actual harvest took place. Finally, also quite a few variable outliers were observed for unknown reasons; These outliers would bias the analyses, as often few data observations were available. Therefore, we decided not to use these outliers in the analyses. These limitations downsized the number of valid observations for each PMC and variable (Table 4.1). The number of observations is far too small to allow for tests for significance or regression analysis to test for causality in intervention logic (e.g. in estimating the determinants of productivity we include indicators of adoption) and to gain insights into the determinants of each outcome. We, therefore, decided to report on the outcomes of the qualitative data analysis only.

Rich qualitative data was gathered via the FGD, interviews and H-diagrams providing insight of the relevance and effectiveness of the intervention. In addition, the FGDs provided new insights on constraints that farmers face and enabled to formulate concrete recommendations for improvements of the PMC approach. These lessons and recommendations are important, as the PMCs were pilot projects with the purpose to experience whether the way they were implemented was successful in the Indonesian context. The qualitative data was collected and analysed based on topics addressed in the FGH and interviews (Chapter 3). Based on the collected qualitative information, the PMCs were assessed using the following elements and questions (OECD, 1991): effectiveness (how effective is the intervention in achieving the program targets?), relevance (how relevant is the intervention according to participants considering program goals and the actual situation?), impact (reach of intervention and how can changes be attributed to the interventions?) and sustainability (what is the long term perspective of the intervention and can and will it last after withdrawal of the intervention?). The evaluation team also takes also into account the operationalization of sustainability by the PMC team itself. The program objectives and the assessment elements were translated into semi-structural interview guides covering the topics presented in Table 4.2.

Table 4.2 Theoretical framework used in the interviews with participants.

Criteria	Definition criteria	Detailed description of criteria	Assessment criteria
Relevance	Is the intervention suited to the priorities and policies of the target group, recipient and donor?	To what extent are the objectives of the program still valid?	Appreciation and satisfaction of the trainings, the variety, PMC facilitation, the business proposition, the agreement
		Are the activities and outputs of the program consistent with the overall goal and the attainment of its objectives?	Relation objectives and vegIMPACT objectives
		Are the activities and outputs of the program consistent with the intended impacts and effects?	Verification ToC and result chain
Effectiveness	How effective is the intervention in attaining its objectives?	To what extent were the objectives achieved / are likely to be achieved?	Concrete lessons learnt
		What were the major factors influencing the achievement or non-achievement of the objectives?	Changes in cultivation practices (adoption) and production of vegetables
			Drivers of change
			Barriers in non-achievement of objectives
Impact	The positive and negative changes because of the intervention, directly or indirectly, intended or unintended. This involves the main impacts and effects resulting from the activity on the local social, economic, environmental and other development indicators.	What has happened because of the program or project?	Concrete benefits as a result from the training (yields, productivity, profitability, farm financial management, healthier produce , healthier farmers, and other unintended changes)
		What real difference has the activity made to the beneficiaries?	
		How many people have been affected?	
			Attribution of achieved objectives to the intervention
			Direct and indirect target group
Sustainability	Do the benefits of the intervention continue after it stops?	To what extent did the benefits of a program or project continue after donor funding ceased?	Will benefits / achievements last after closure of the intervention
	(See also section 2.5)	What were the major factors, which influenced the achievement or non-achievement of sustainability of the program or project?	Chance of continuation of adoption and changed practices (including farm recording)
			Conditions and drivers for sustainability

5. Evaluation of the PMC interventions

5.1 PMC overview from PMC reporting

During the implementation of the ten PMC pilots, the vegIMPACT PMC team has acquired a lot of knowledge and experience on connecting smallholder farmers to markets. However, it was also confronted with the challenges faced by supply chain partners and the recurring aspects that appear to contribute to the success – or lack of success - of the PMCs and connecting farmers with markets.

In 2016, the final year of the vegIMPACT program, the PMC team has developed and conducted a range of dissemination activities of the lessons learnt in these PMC pilots. Dissemination workshops and seminars were conducted, for example, for organized farmers, students, NGOs (Non-Governmental Organizations) and staff of *Dinas pertanian*. These activities were aimed at creating awareness about the importance of demand driven supply chain development and the main factors for success, based on the PMC activities within the vegIMPACT program.

Table 5.1 below summarizes the ten PMCs providing information on sector, location, period and participants as well as the business proposition and the trader. The main interventions in PMCs are:

1. Introduction of new variety of high quality.
2. Cultivation training of farmers in using new variety and good agricultural practices (GAP).
3. Training producers on consumer / retail requirements and quality standards.
4. Introduction of coordinated planting schedule to secure continuous supply.
5. Training on harvest and post-harvest techniques.
6. Organizational training on farmers' collective action.
7. Formulation of business proposition and linking of supply chain parties.
8. Facilitation in contract farming: farmer-trader & trader – retailer.
9. Marketing training for trader, and extension workers and (new) brand and product label development.
10. Sometimes provision of loan (from involved trader or from vegIMPACT, for example, for purchasing irrigation equipment).

Table 5.1 Overview of the PMCs implemented with the main characteristics. See section 2.2 for an overview of the reports for the different PMCs.

PMC	Crop	Location	Period	Farmers[4]	Business proposition	Trader
1	Hot pepper	Central Java	Jan '13 – Jan '14	20	Continuous supply of premium quality hot pepper (red and green) for export to Singapore retail market. Produced with a minimum amount of pesticides and compliant with international threshold level for pesticides and sold at pre-established contract prices.	PT Alamanda (worked before with farmer group)
2	Shallot	Central Java	May '13 - Dec '13	20	Premium quality shallots in attractive consumer packaging for retail markets in Jakarta.	PT Sewu Segar Nusantara (SSN) – new in shallot, experience in fruits;
3	Bell pepper	East Java	Sep '13 - Dec '14	15	Locally graded and packed bell pepper for retail and hotels near Surabaya.	PT Bahtera Agricultura Indonesia
4	Potato processing	West Java	Sep '13 - Nov '15	4	Production of potato crisps from potato grown by local farmers for domestic markets.	Sinar Dua Putra (processor); Ceutety (trader that repacked bulk from Sinar Dua Putra)
5	Beef tomato	East Java	April '14 - Aug '15	15	Beef tomato from grafted plant produced in rain shelter and locally graded, packed, and branded for retail in Surabaya and Jakarta	PT Condido Agro
6	Various vegetables	North-Sumatra	Oct '14 – Nov '15	25	Increase income of contract farmers through improving production practices of various vegetables (e.g. cabbage, potato)	Horti Jaya Lestari sourcing from about 500 farmers, but also own producer
7	Beef tomato	West Java	Dec '14 – April '16	18	Beef tomato from grafted plant produced in rain shelter and locally graded, packed, and branded for retail in Surabaya and Jakarta	PT Condido Agro
8	Carrot	West Java	April '14 – Nov '15	7	Production high quality carrot based on improved and new variety Norma for retail markets	Cooperative Mitra Tani Parahyangan
9	Broccoli	South Sulawesi	March '15 - March '16	22	Production high quality broccoli based on improved and new variety for retail markets in Makassar	Rodeo Fresh
10	Carrot	South Sulawesi	Feb '15 – Feb '16	17	Production high quality carrot based on improved and new variety Norma for retail markets in Makassar	Rodeo Fresh who already supplied Makassar from East Java
Total				**163**		

[4] In some cases the number of exact participants is unclear as the composition of the participating farmer groups fluctuated with drop outs and new participants during PMC implementation.

5.2 Results from FGD, H-diagrams and interviews

Although all PMCs are unique, there are common experiences, general findings and collective challenges. The following paragraphs summarize the main outcomes on the evaluation criteria based on the qualitative data gathered and the reviewed PMC reports. The weak and strong elements are elaborated upon and the PMCs are reflected upon alongside the criteria relevance, effectiveness, sustainability and (perceived) impact. In addition, main challenges and suggestions for improving the intervention are presented.

Table 5.2 gives and overview of the main outcomes per PMC based on the FGDs and the H-diagrams and it presents the opinion and perceptions of the farmers participating in the PMCs. Figure 5.1 gives a summary of outcomes based on PMCs. At the end of 2016, none of the PMCs was functional in the way they were originally designed. Some farmer groups still produce the variety introduced through the PMC but sell at local markets or via new traders. No formal contractual arrangements as in the PMC's are in place though. Some farmer groups are active and collaborating in production and marketing of produce. However, these farmer groups were already active before the PMC intervention. Only two farmer groups still work on crop schedules as introduced by vegIMPACT and produce vegetables year-round. Overall, the trainings and newly acquired knowledge were strong elements in the intervention. The main weak elements mentioned by farmers are the challenging relation with traders, violation of the contractual agreements and difficulties to supply continuously over an extended period. Every PMC has some unintended side effects, some positive and some are negative in character (Table 5.2).

Table 5.2 Main outcomes per PMC, information based on FGDs and interviews. See Appendix IV for details per PMC.

PMC type and location	Current status	Weak	Strong	Unintended effects
Hot pepper, Central Java	PMC not functional as designed; Farmers had outstanding debts at end of PMC[5];	Weak risk management; Difficulties in continuous supply; Support too short; Mediation of PMC team insufficient; Rejection of produce (disagreement about grading); No/late payment by trader;	Training on farmer organization; Training on GAPs and IPM;	Outstanding debts; Problematic relation with trader; Failed harvest; Bad reputation as a farmer group according to other traders; No market for rejected produce;

[5] Farmers had outstanding debts at the moment of the FGD, d.d. April 216. It is unknown what their current status is (d.d. December 2017)

Shallot, Central Java	PMC not functional as designed;	Disagreement about grading; No payment by trader according to agreed price; Difficulties in continuous supply; Challenge to sell remainder of produce;	Knowledge on IPM; Reduction input cots pesticides;	Problematic relation with trader; No market for rejected produce;
Beef tomato, West Java	PMC not functional as designed; Farmers still use introduced variety in the dry season; After PMC, collaboration with new trader; but, production volume too low to meet contractual agreed volumes;	Disagreement trader / challenging relation; Produced volumes too small to meet contractual arrangement; Zero yields in the wet season, area not suitable; No strong leadership and commitment of group members; Advice on the variety and correct SOP was contradictory and too late available;	Training on GAP/SOP	Farmers hired an external administrator to keep records for them; Destruction of rain shelters introduced by PMC;
Carrot, West Java	PMC not functional as designed; Only one farmer uses the PMC variety Low group cohesion before and during PMC	Poor harvest, much lower than expected by the PMC team. Impossible for farmers to meet the volumes agreed to in the contract; Problematic relation with trader; Confusion about the correct SOP and suitability variety-land; Too risky to produce in the wet season;		One farmer works as a labourer and applies the variety with his own SOP (organic). This farmer reports large high quality yields but this farmer is the only one of the group with suitable land;

Broccoli, South Sulawesi	PMC not functional as designed; Farmers still use the broccoli variety introduced by the PMC; Famers sell to the informal wet market; The farmers have an active farmer group and work with crop schedules; There is overproduction and a low market price, however, the price is still higher than the ordinary local variety of broccoli.	Choice for PMC trader weak (large distance to market); Problematic relation with trader: violation of contract and price agreements; Duration of PMC support too short;	Introduction to new variety: more competitive than local variety; Concrete learnings and adoption on GAP; Stronger group performance due to training; More consumption of broccoli in this region;	Positive attention and additional support from the government; Other farmers also aim to use the new broccoli variety[6];
Carrot, South Sulawesi	PMC not functional as designed; Farmers still use the carrot PMC variety (Norma); Farmers sell to the informal wet market; Market price for Norma is higher than for the regular carrot variety; The farmer group is active and they work with crop schedules.	Choice for PMC trader weak (huge distance) Problems with trader: Violation of contract (no payment of agreed price); Outstanding debts; PMC support too short (no support when problem with trader started);	Introduction to new variety: more competitive; Higher market price for this variety + higher yields; Lower input costs as a result of lower pesticide and fertilizer application; Concrete learnings + adoption on GAP; Stronger group performance due to training;	GAP learnings are also applied to other crops than the PMC crop; Outstanding debts due to late payment by the trader;

[6] As a result, price could decrease and competitive situation of the farmers group will fade out.

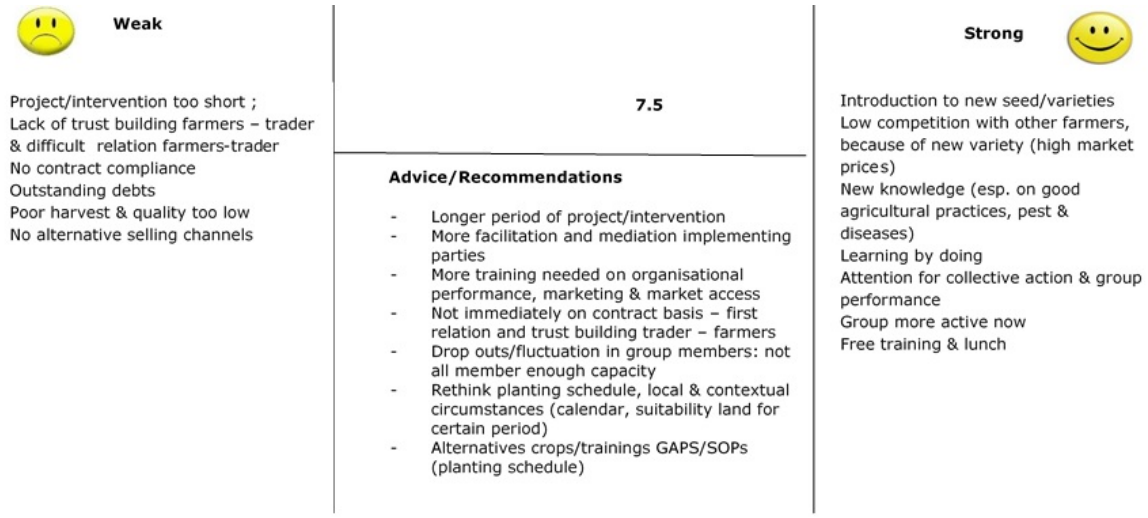


Figure 5.1 Summary of the H-diagrams used in the FGDs with the farmers.

Table 5.2 and Figure 5.1 show farmers perceptions. Based on the interviews with all stakeholders (including the PMC team, the trainers, the seed providers and the traders) and the FGDs, the following positive outcomes can be formulated:

- Introduction to a new / improved variety;
- Training on good agricultural practices including integrated pest management;
- An holistic approach: training on agricultural practices, farmers' organisation and market access;
- Awareness raising on 'demand driven supply chain' thinking including quality requirements from consumer demand;
- Training on farmers' organisation and collective action in production and marketing;
- Mixed results on production costs: some farmers report a reduction in production costs due to less application of pesticides;
- Mixed results on receiving a better price: some farmers report to have received a better market price for their crop because of the new variety produced;
- Learning curve of PMC team: the last two implemented interventions (broccoli and carrot in Sulawesi) were more successful in terms of production and yields, market price received and group performance. The PMC team paid more attention, for example, to the selection of farmer (groups). Even though both PMCs in Sulawesi are not functional as originally developed, the farmers still produce the introduced variety, are active as a group and apply the GAP learnings also to other crops and work with crop schedules using other business propositions. Differences with these two PMCs and the other PMCs are:
    - Existing and organised farmer group (before introduction of PMC) with a structure and positive attitude towards collective action;
    - Suitable circumstances for the introduced crop variety (soil, climate, willingness to work with a crop schedule) and competitive advantage towards other farmers and existing crops.

Based on the same information sources, the negative outcomes can be summarized as follows:

- The period of support, i.e. one year per PMC, was too short for the PMC (team) to facilitate or mediate effectively between farmers and trader. There was little time reserved for hick ups, 'child diseases' and, most importantly, relation and trust building between all supply actors involved.
- It was difficult for farmers to adhere to the crop schedules; sometimes, soil or climate was not suitable for production of the PMC crop. Too little attention for the effects of wet season production (e.g. increased disease/pest pressure) and dry season production (e.g. need for irrigation).
- In all PMCs contracts were violated, both from farmer and traders side. Farmers found it difficult to supply continuously and meet the quality requirements. Besides, there were misunderstandings about quality of produce and the requirements set. Traders did not pay the price agreed upon or rejected produce. Both farmers and traders accused each other of contract violation. At the moment of the evaluation, there were several farmers with debts because of the PMC and the relationship with the trader of the PMC was still problematic.
- The proposed business propositions were too ambitions for the participants selected.
- Lack of in-depth feasibility studies, context analyses and risk analyses in the majority of PMCs.

In the following sections, the collected qualitative information is analysed and presented according to the OECD criteria defined in Chapter 4.

5.2.1 Relevance

Farmers gave anonymously a score to the intervention: Their average score was 7.5 on a range 1-10 with 10 being the highest score. In general, farmers underscore the importance of the intervention as it provided access to new varieties, access to new and up-to-date agricultural knowledge and information on marketing. The majority of the participating farmers appreciated the trainings and underlined the relevance of trainings. Another important issue was the introduction of new varieties in some PMCs that offered participating farmers a stronger market position compared to other farmers. In theory, working on a contractual basis with a fixed price, guaranteed market and supply of a minimum standard is relevant from farmers and traders' perspective. In practice, though, farmers and trader meet many challenges and they do not prefer to work on a contractual basis as it limits their freedom in selecting partners. Besides, there are no legal arrangements in place in case of contract violation. Figure 5.1 gives a summary of the H-diagrams and the main outcomes on weak and strong elements and recommendations according to the farmer participants. Appendix IV provides an overview of all the outcomes of the H-diagram per PMC and Appendix V summarize the main outcomes of the interviews with the PMC stakeholders.

The farmers, seed providers and traders were positive about the training on collective action and farmers' organisation. According to the respondents, Indonesian cooperatives and farmers' organisations are marked with low trust and low commitment. However, farmers admit the need for collective action in production and marketing and are eager to position themselves in the market. However, only three farmer groups of the ten PMCs are still working together and two

out of them were already organised before the launch of the PMC. Strong leadership, trust, transparency and awareness of the common good instead of the individual benefit are crucial in a better performance of the farmers' groups.

5.2.2 Effectiveness

In general, farmers adhere great importance to the training on good agricultural practices and integrated pest management. They joined with enthusiasm and the majority followed all trainings offered in the PMC's. They were able to memorize certain lessons, uptake has been done concerning the relatively easy lessons and recommendations, for example, replacing nozzles, frequency of spraying, timing of spraying and planting distance. Farmers unanimously stipulated upon the difficulty to produce the PMC crops and apply the recommendations in the wet season, as it is more risky to produce vegetable crops in the wet season due to higher pest and disease pressure. Related to that is the challenge to plant according crop schedules and to supply continuously both in the dry and wet season. It is more risky to plant in the wet season and not all farmers are capable and willing to produce in the wet season jeopardizing continuous supply. Only two PMCs still work with crop schedules.

Another common challenge was found in the quality of produce and the perception of grades. For farmers it was often difficult to meet the agreed quality requirements. On the other side, traders refused to purchase the grades agreed and - according to producers - revised quality standards after harvest. According to inception reports of the PMCs, and the interviews with PMC staff, the traders, seed providers, farmers and trainers, tensions in the relations between producers, traders and retailers are not new. The relations are characterized by low trust, misbalance in and even abuse of power in a context with weak socio-economic, institutional and infrastructural conditions.

A core activity of the PMC was to establish market linkages based on a solid business proposition: link farmers with a specific kind of commodity of high quality to a trader. All the business contracts developed in the PMCs have been violated and none of the farmer-trader relationships established in the PMCs is functional at the moment of reporting. In some cases, farmers and the trader involved had a problematic relationship and outstanding debts at the end of the PMC (e.g. the hot pepper and broccoli PMC). Farmers reported higher incomes because of the newly introduced variety but this was only the case for some farmers in two PMCs. In general, business propositions were too ambitious, i.e. in hindsight, many of the participants (both farmers and traders) were not capable and eligible for achieving the formulated ambitions. The volumes agreed upon, the quality standards and the modern high-end retail party selected were not realistic considering the farming level of the participants and the contextual, environmental and cultural challenges. Some of the traders worked little transparent and appeared to have double agendas. The established market linkage and business propositions turned out to be ineffective.

5.2.3 Sustainability

As mentioned earlier, none of the PMCs is functional as originally designed and no business proposition has been realised successfully during or after the PMC intervention. In two PMCs (Sulawesi) thanks to the newly introduced variety, the farmers have a stronger competitive position compared to other farmers. Important to note is that the PMCs were pilot projects, i.e. they were relatively small scale, very broad (in terms of sectors and regions), and had to be

realised in a very short time. Maybe the pilot projects could have generated more positive results on sustainability if the learnings were generalised and internalised earlier in the still to be developed PMCs. Yet, the PMCs provide important learnings and insights, which are very valuable for policymakers and practitioners for future interventions and projects aimed at linking smallholders with other value chain partners.

Some aspects related to the sustainability of the PMC intervention cannot be captured at this stage of reporting. Farmers have been trained on farmer group strengthening, GAPs and planting schedules, which are also relevant for other crops than the crops addressed in the PMCs. If farmers continue to apply the lessons learned of the trainings in other crops, crop yields may increase and/or costs reduce thanks to the integrated pest management techniques learned during the PMC trainings. Similarly, the farmer group trainings may result in better collaboration among farmers beyond the time span of the vegIMPACT project. Three out of ten PMCs showed great interest at the end of the PMC to continue as an active farmer group. They relate this attitude directly to the PMC training.

5.2.4 Impact

In total 163 farmers and 8 companies were directly involved in the ten PMCs and (Table 5.1). In addition, some 850 stakeholders have been reached in dissemination workshops with the PMC concept and lessons learned from the ten pilots across Indonesia. As explained in section 4.3, the M&E team did not manage to collect accurate quantitative data on the ultimate outcome (productivity, production costs, earnings and margin) of the PMC interventions for a number of reasons: the overall low number of farmers participating from the start to end in a PMC, the lack of recall by farmers on yield, area size, production costs and earnings, untimely monitoring of data and the observation of quite a few outliers in the collected data, which were hard to explain considering the data of other farmers. Partly for the same reasons, the PMC team had also not been able to collect many quantitative data on ultimate outcome indicators of the intervention. Positive figures on profit presented in some of the PMC reports cannot be confirmed with the underlying evaluation. Other farmers though reported outstanding debts and financial problems at the end of PMC activities.

An indirect aspect concerning both sustainability and impact of the PMC is the dissemination of the lessons learnt. The PMC team organised intensive seminars and workshops and distributed fact sheets on the main lessons learnt and recommendations for improving the supply chain. A variety of audiences was targeted, from agribusiness students to governmental officials. The future will reveal the effects and impact of these dissemination activities. Sowing is done and the harvest will further reveal the grade of sustainability and scope of impact.

6. Discussion and conclusions

6.1 Discussion and recommendations on M&E

Data collection in Indonesia has its' challenges considering i) the large geographical size of the country, ii) the uniqueness of each individual island in terms of climate, governance, agricultural practices, culture and socio-economic circumstances and the iii) climatological differences in one year, i.e. the wet and dry season. The M&E framework and instruments were designed in such a way to take into account these challenges and track on progress with a representative sample. The farmer survey was quite general and therefore applicable all over Indonesia. The focus group discussions and interviews were customized and very participatory of character. The quantitative data collection as part of the original M&E framework/methodology had a number of limitations and challenges:

i) The fluctuations in farmer group composition, i.e. the drop outs and new participants of the intervention leading to a very small number of valid observations;
ii) The climatological differences in one year, i.e. the wet and dry season and the crop schedules applied complicated the comparison among farmers, years and seasons.
iii) The wide distribution of PMC farmers across Indonesia hindered frequent monitoring visits;
iv) The majority of farmers did not keep records on farm activities hampering data collection and the possibility to crosscheck collected data;
v) Weak communication and alignment between PMC team and WP M&E resulting in untimely monitoring activities;
vi) The limitation that evaluation needed to be done within the vegIMPACT programme period while the potential impact of various PMC activities can only be measured after project ending (paragraph 5.2.5).

Based on the encountered obstacles and identified limitations of the developed M&E framework/methodology a number of recommendations are given for measuring results of similar interventions in the future. Recommendations for improvement concern:

- Data-collection at farmer group level instead of individual farmer level;
- Additional data collection on production and marketing among seed supplier and trader;
- Participatory evaluation could be very applicable, i.e. farmers should be trained on farm record keeping and other participants of the program (e.g. the trainers and field staff) play a role in monitoring and providing input for evaluation;
- Less focus on ultimate outcomes (e.g. yield, costs) and more on agricultural practices itself, on satisfaction with training and results of farmers' perception on changing yields and profit because farmers are not used to monitor and record such data. The qualitative information provides crucial insights in the mechanisms and it factors hampering or enabling positive change, and discloses information about what farmers consider important changes as a result of the intervention. In addition, the small number of participants allows for profound in-depth qualitative evaluation.

6.2 Discussion and conclusions based on main assessment criteria

Table 6.1 Overview outcome evaluation criteria per PMC (+ = positive, - = negative, +/- = 50% negative and 50% positive)

PMC type and location	Relevance	Effectiveness	Sustainability	Impact
Hot pepper, Central Java	-	-	-	-
Shallot, Central Java	-	-	-	-
Beef tomato, West Java	+	-	-	-
Carrot, West Java	-	-	-	-
Broccoli, South Sulawesi	+	+/-	+/-	+/-
Carrot, South Sulawesi	+	+/-	+/-	+/0

Relevance

From all perspectives in the food system (i.e. farmers, traders, retail and consumers), there is a need for a strong, efficient, effective PMC with a guaranteed produce, market, supply of a minimum quantity of a certain quality and against a certain minimum price. Currently, many vegetables are imported in Indonesia and farmers lack knowledge on GAPs, access to quality seed and access to markets. Trainings on GAPs, on group performance, on marketing and memorandum of understandings between producers and buyers are needed. As such, in theory, the PMC approach meets the needs of the supply chain actors. In general, the farmers appreciate the trainings on GAPs and group organisation. However, in the case of the PMC hot pepper, shallot and carrot at Java the farmers as well as the traders involved did not see any relevance in changing their current situation according to the PMC-philosophy. In the other PMCs, the participants were more convinced of the relevance: the PMC introduced a new variety and built individual and group capacity. However, the farmers do not prefer to work on a contractual basis and disagree on the relevance of contract farming.

Effectiveness

With respect to the knowledge transfer on GAPs and IPM, the trainings turned out to be effective. In the wet season, farmers did adopt several learnings from the training, the relatively easy ones like drop size, spraying time, space of planting and amount of fertilizer or pesticides. In two PMCs, the newly introduced variety was suitable and effective and benefitted farmers, traders, retail and consumers. In these two PMCs, learnings on GAPs were also applied to other crops reducing production costs and increase quality of the crop because of less pesticide application. Even though the year round supply of the farmer group is core element in the PMC approach, crop schedules were little effective as it appeared challenging to produce the whole year round, especially in the wet season. In addition, there are cultural constraints to stick to a crop schedule, for example, at Java a local calendar exists influencing decision making of a farmer (e.g. the position of the moon is more important than the schedule agreed on in the contract).
The quality requirements and grading of produce turned out to be a problem in all PMCs except for the two PMCs at Sulawesi. There were many misunderstandings about grading, about the quality requirements. No independent party decided about the grade of the produce, leaving

room for various interpretations of standards and mutual accusation.
Three farmer groups are strengthened and are willing to further cooperate and improve their performance. The training on farmers' organisations turned out to be effective in these cases. Collaborating formally and working on a contractual basis turns out to be very challenging for all parties involved, i.e. farmer, trader and retailer. The formal contracts developed for each PMC were little effective in strengthening the collaboration among farmers, traders and retailers.

Sustainability
The PMCs were set up as pilots allowing to test whether arrangements among value chain partners can upgrade existing market linkages or to develop jointly new market opportunities. These pilots were developed in a pressure cooker, giving little attention *a priori*, for example, to technical feasibility, market needs and selection of participants. Therefore, it is no surprise that none of the business proposition as originally designed has fully succeeded in *sustainable* business models according the criteria set by the PMC team (section 2.5), i.e. PMCs have not been continued by the beneficiaries, financial benefit of individuals and at farm group level has been limited and none of the PMCs has become self-propelling. Given the short time span available for each pilot, it was not very realistic to develop sustainable PMCs including a well-established exit-strategy and phasing out role of the PMC team, which are prerequisites in the process to become independent (without external support) functioning PMCs. Especially in a context where the current situation is common, accepted and deeply rooted in and throughout society, it takes a lot of experience, effort, time, constituency and commitment from actors to create sustained change. However, there is potential for sustainability as farmers are trained on GAPs, on farmers' organisation, on the logic of demand driven supply chain, on marketing and market access. If they are able to capitalize on the knowledge received and the experiences from the PMC approach, they can improve production, access the market and perform as a farmers' group.

Impact
It is early to have concrete and valid insights into the longer-term impact of the PMC approach. The impact very much depends on how the farmers and traders continue and if they are able and willing to capitalize on the lessons learnt and on the effects of the profound dissemination activities of the PMC team.

7. Recommendations

The PMCs implemented were pilot projects and as such offer very relevant input for policy making and practitioners. This Chapter elaborates on the lessons learned to formulate a number of recommendations for improving the PMC approach and for strengthening inclusive supply chains. Success of an intervention depends on a) the applicability of the intervention logic (ToC) and b) the way the ToC is implemented. Both the ToC and the implementation offer room for improvement.

The PMC concept is in theory very relevant in the context of Indonesia where most small vegetable farmers produce for the local wet market. Farmers need access to new and more remunerative markets and they need an incentive (guarantee of market and of a minimum price) to improve production practices to meet consumer demands. Small farmers lack up to date good agricultural knowledge and expertise on farmers' organisation and market access. Traders do not have a continuous supply of produce and quality is often below the minimum consumer requirements. Vegetable market prices are highly volatile and leaves farmers and traders with high uncertainty. Retail is forced to import vegetables from neighbouring countries to guarantee consumption and to ensure that quality requirements are met. No stable supply chains exist and from all perspectives and uncertainty and risk-aversion prevail. It is crucial to get and to keep all actors on board, to build relationships and trust and to be sensitive for cultural norms, values and customs including power balances.

The Indonesian context proves to be challenging considering it's' climate, socio-economic and institutional conditions. An increasingly important influencing factor is climate change. Although Indonesia knows two seasons - the wet and dry season - weather becomes increasingly unpredictable making horticultural production more challenging. Every season has its' own challenges. The main challenge in the dry season is water availability and for the wet season the risk of pest and diseases. There is also always the risk of a (new) pest and disease outbreak, especially in the wet season and there is not always an up to date expertise on the correct control strategy. This challenges farmers to work on a crop schedule and to supply year round. New information and decision-support tools are required to help farmers to deal with more variable seasonal weather conditions. Another external influence relates to market prices of horticultural products, which typically fluctuate strongly. While the government regulates rice prices, horticulture lacks any regulation. In addition, the government still favours rice production by subsidising rice inputs.

Another cultural constraint is the unequal relationship between trader and farmer. The trader is more powerful and a contract does not make a difference. There no institutional arrangements in place in the case of contract violation. In addition, at the farmer-to-farmer level tensions exists and collective action is not customized in the Indonesian culture. In general, there is low trust between farmers hampering successful performance of a farmer group.

Contract farming is internationally used by an increasing number of firms as a preferred modality to source products from smallholder farmers in low and middle-income countries. A recent literature review reveals the complexity of contract farming and indicates that the launch or intervention logic of contract farming is not the Holy Grail in strengthening the value chain or improving farm income (Ton et al 2017). The professional literature reviewed indicates that there

are many factors (e.g. lack of trust between firm and farmers, fragility of market access for the firm, low knowledge and skills on the new crop/livestock on the part of farmers) that result in a high likelihood of failure and subsequent abandonment of contract farming as a modality for a firm to source products from smallholders.

Recommendations on the PMC implementation are the following.

1. **Profound feasibility study both upstream as well as downstream in the supply chain**
   Start with profound problem and context analysis. It is risky to start with new varieties, technologies and high demanding markets. Profound feasibility studies are necessary which distinguishes between dry and wet season, opportunities and challenges of new production technologies, and market requirements. Risk management is needed especially when farmers are offered loans.

2. **Critical selection of participants and align business proposition and producers capacity**
   Proper selection and assessment of PMC participants is crucial. Overall, vegetable supply chain practices and partners (from upstream to downstream) in Indonesia are still very basic. Important issues to consider are:

   - Identify the most suitable and achievable (retail) market for smallholder farmers.
   - Balance the demand driven point of departure and supply capacity of the smallholder farmers. Selection for farmers: who is ready for this approach, this type of project and market access (with ambitious consumer demands)? Including location (suitability crop & distance market/trader).
   - Apply a careful due diligence while selecting the trader. Consider experience as a trader, cash flow, history with farmers (groups) and conduct research to other farmer (groups) a potential trader is working with.

3. **Presence / capacity building of strong farmer groups**
   Most farmers in Indonesia are too small to provide a continuous supply of vegetables. In addition, the size of their businesses prevents equal and fair partnerships with traders. Only through effective cooperation between farmers, sufficient economies of scale can be achieved, costs can be reduced and a better bargaining position of farmers with traders and input suppliers can be obtained. Furthermore, strong and well-organized farmer groups are required for effective internal knowledge management, joint marketing and efficient logistics to connect successfully with modern markets. As pointed at in the previous paragraph, it takes time to develop strong farmer groups with effective leadership and mutual trust.

4. **Trust building & relation building actors supply chain**
   Focus first on relations, trust building, clear and transparent communication. Apply frequent round tables with all parties involved. Start all together with a stakeholder workshop and define the strategy together. Include the main parties in selection and strategy. Ensure aligned objectives, perspectives and time horizon of the intervention. Relation building and trust creation is pre requisite for any intervention, collaboration or memoranda of understanding.

5. **Contract farming not the solution and does not diminish all risks**
   Related to the previous recommendation, do not start immediately with a contract. Do not overestimate the value of a contract in the Indonesian context. A signed contract does not provide the solution if other challenges are not tackled.

6. **Continuous product supply: planting schedule with risk management**
   Demands from supermarkets are different from the traditional retail channels. Modern supermarkets require a continuous supply of high quality and uniform vegetables on a weekly basis, because they want to offer their customers a stable selection of vegetables. In order to arrange for such a continuous supply, producers need to work with planting schedules. However, this is risky; especially for those farmers that face wet season conditions or that do not have irrigation facilities in the dry season. Risks of farmers need to be managed and there needs to be a shared responsibility of farmer group and trader, see also point 1.

7. **Long term supply chain support along the entire supply chain with strong management**
   Another important factor for successful inclusive and sustainable development of the horticulture sector in Indonesia is long-term supply chain support to partners along the entire supply chain. The vegIMPACT program allocated only twelve months per PMC pilot, including supply chain analysis, selection of partners, developing the market proposition and implementation. At the end of the program, all actors concluded that the twelve months' timeframe was too short to guarantee sustainability of the proposed changes and activities. Farmers and supply chain partners require more time to build trust, experiment and to develop the capability to apply the expertise and skills in other product market configurations. More time to implement a project like PMC is needed and the recommendation is to support at least for three years similar type of interventions. Include time for hick ups and a learning curve for all actors: implementers, producers, trader, seed companies and developing the correct SOP/technique for location-specific conditions. Strong management with frequent monitoring and close guidance is needed, especially at the start.

8. **Step by step tailor made approach**

   For a relevant and successful PMC project, a tailored and specific approach is required. PMC's should be developed and designed based on a clear market demand in the region, but also on regional production and contextual circumstances, farmers' skills and markets readiness.

   Step by step implementation of activities is the advice, as farmers are faced with many new technologies and concepts (i.e. crop variety, SOP, GAPs, group working, continuous supply, official contract with trader, quality requirements). Most farmers cannot apply all at once and have limited absorption capacity in combination with in general an attitude of risk aversion and a short time horizon.

9. **Value chain thinking and embedding**

   Successful PMC development starts with sound awareness of the various stakeholder in the

chain about demand driven supply chains. During a follow up phase, farmers and other stakeholders of specific PMC supply chain configurations can be supported to acquire practical experience with market driven supply chain management through implementation of specific PMC business propositions. Embed the program in the local culture, dynamics and activities and link to other parties. For sustainability and more impact.

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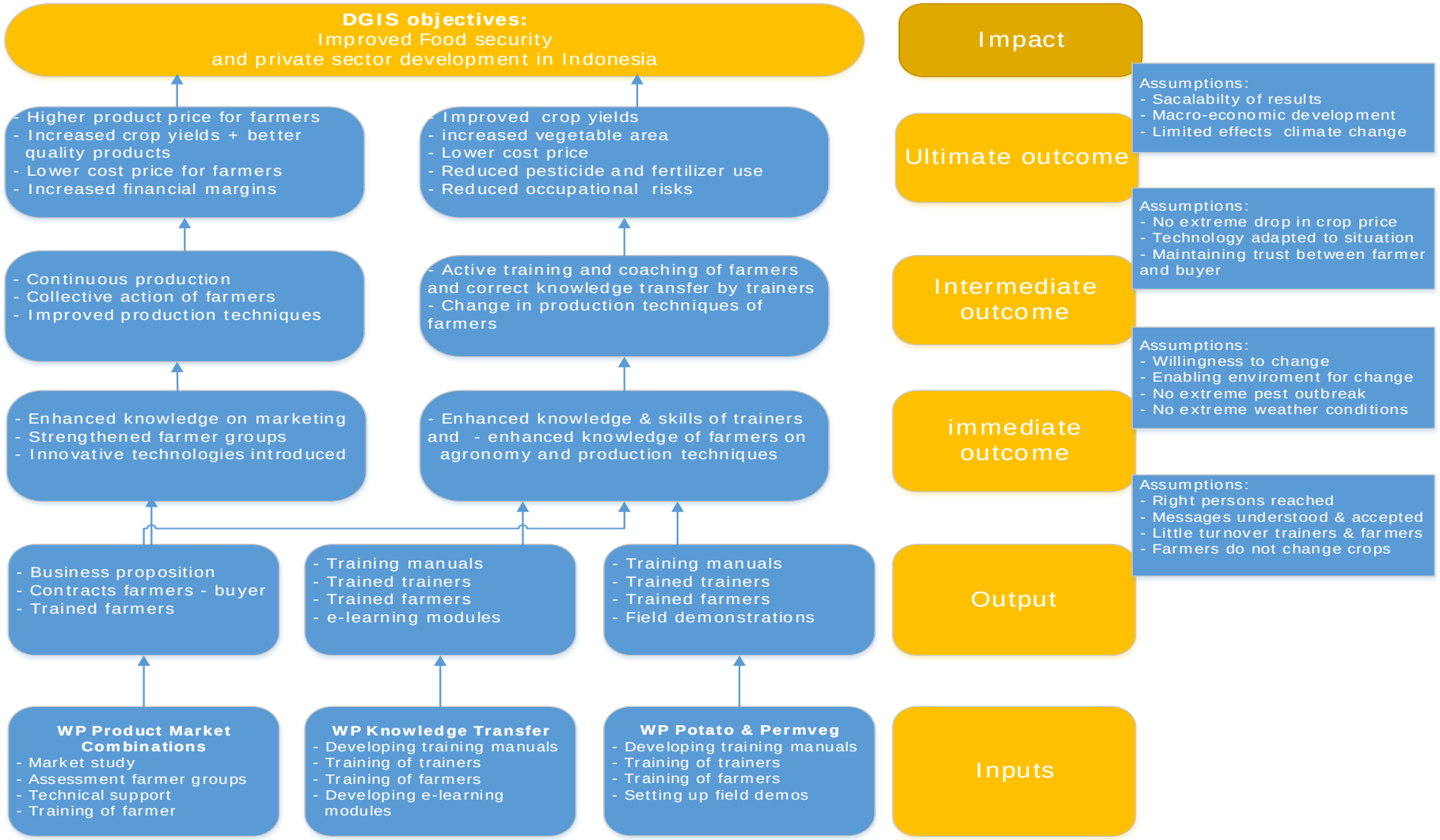
9. APPENDIXES

Appendix I ToC vegIMPACT



Appendix II Survey PMC

Instruction for enumerators: Interview the person who is mentioned on your list. When he or she is not available, come back later for the interview. Thank you! Remember to write down -999 or thick the box "Don't know" when a farmer does not know and thus does not give an answer! Write down na (short for not applicable) when a question does not apply to the farmer's situation). The questions are related to the last dry season (year xxxx) and wet season (year xxxx), unless otherwise mentioned.

01 Date of interview (dd-mm-yyyy):……..

02 Name of enumerator:……

03 Region:
1. West Java
2. Central Java
3. East Java
4. South Sulawesi
5. Sumatra

04 Intervention PMC:
1. Shallots
2. Hot pepper
3. Paprika
4. Tomato East Java
5. Tomato West Java
6. Carrot Java
7. Carrot, Sulawesi
8. Broccoli, Sulawesi
9. Sumatra

A: General questions and labour

A.0 Gender
1. Male
2. Female

A.1 What is your name: ……

What is the phone number on which we can reach you (e.g. his mobile phone number, or from his relatives): ……

A.2 What is the highest level of education that you have finished?
1. None
2. Elementary school
3. Middle school
4. Senior high school

5. Other……..

A.3 What is your age? .....

A.4 Where is your farm located? (village and sub district) :
……

A.5 How many people are part of your household? ……

A.6 What is your position in the household? 1. Household head
2. Spouse
3. Child
4. Other

A.7 What is the total size of your land?: ……. (please mention size indicator, in bagian or other)

A.8. What was your crop (PMC CROP) rotation schedule during last wet and dry season of the land size indicated in A7?

Dry season YEAR: XXXXX

CROP OF PMC	Planting date – Harvest date (day/month/year)	Area planted (in square meter) (or greenhouse)	Yield per crop (in kg)	Price per kg (Rp)	Land: Owned (1) or rented (2)	Rental fee or estimated rental price, if land would be rented out	Soil condition (bad 1-average 2-good 3)	Weather condition for cultivation (bad 1-average 2-good 3)	Comments
	1b	1c	1d	1c	1e	1f	1g	1h	

Wet season YEAR: XXXXX

CROP OF PMC	Planting date - Harvest date (day/month/year)	Area planted (in square meter) (or greenhouse)	Yield per crop (in kg)	Price per kg (Rp)	Land: Owned (1) or rented (2)	Rental fee or estimated rental price, if land would be rented out	Soil condition (bad 1-average 2-good 3)	Weather condition for cultivation (bad 1-average 2-good 3)	Com-ments

1a	1b	1c	1d	1c	1e	1f	1g	1h	

A.9 Do you have people working for you?

1. Yes
2. No → please go to section B.
3. I do not know

A.10 Indicate the number of people that work for you only in vegetables production (PMC CROP) related to the realized output and land size indicated in question A.

Dry Season

Activities	Dry season						
	Own days by farmer	Male	Labour days* per person	Daily wage / contract *Rp	Female	Labour days* per person	Daily wage / contract *Rp
Field preparation	1a	1b	1c	1d	1e	1f	1g
Planting	2a	2b	2c	2d	2e	2f	2g
Weeding	4a	4b	4c	4d	4e	4f	4g
Fertilizer	5a	5b	5c	5d	5e	5f	5g
Spraying	6a	6b	6c	6d	6e	6f	6g
Harvesting	7a	7b	7c	7d	7e	7f	7g

Wet Season

Activities	Wet season						
	Own days by farmer	Male	Labour days* per person	Daily wage / contract *Rp	Female	Labour days* per person	Daily wage / contract *Rp
Field preparation	1a	1b	1c	1d	1e	1e	1e
Planting	2a	2b	2c	2d	2e	2e	2e
Weeding	3a	3b	3c	3d	3e	3e	3e
Fertilizer	4a	4b	4c	4d	4e	4e	4e
Spraying	5a	5b	5c	5d	5e	5e	5e
Harvesting	6a	6b	6c	6d	6e	6e	6e

B: Current practices (Vegetables: PMC CROP)

B.1 How do you spray in order to prevent diseases in your crop?

1. I do not spray → please go to section B.8
2. Always a single doses of 1 product
3. Always a mixture of various products
4. Sometimes a mixture, sometimes the single product
5. Other, please specify….
6. I do not know

B.2 How often do you spray per week? Dry season: …….. Wet season:…….

B.3 Why do you spray?

1. Preventive
2. Curative
3. Other, please specify….
4. I do not know

B.4 How do you spray?

1. By hand-driven knapsack sprayer
2. Motorized knapsack sprayer
3. Nozzles mounted on a boom of a motorized sprayer
4. Other, please specify….
5. I do not know

B.5 How does you nozzle look like?

1. Extra big drops (that I've made myself)
2. Big drops
3. Small drops
4. Other, please specify….
5. I do not know

B.6 How is your spray angle?

1. Wide angle spray radius
2. Small angle spray radius
3. Other, please specify….
4. I do not know

KNOWLEDGE QUESTIONS: PHOTOS DISEASES AND ANSWER CATEGORIES VARY PER PMC

B.7 Please identify the following vegetables disease based on the picture below:

1. Leaf miner
2. Anthracnose
3. Army worm
4. Thrips
5. Other, please specify: …….
6. I do not know

B.8 What is your recommend methods for this vegetables disease?

…….

.9 Please identify the following vegetables disease based on the picture below:

1. Leaf miner
2. Anthracnose
3. Army worm
4. Trips
5. Other, please specify: …….
6. I do not know

B.10 What is your recommend method for this vegetables disease?

…….

C: Occupational health

C.1 How long is the period between spraying and general work (e.g. weeding) in the field?

1. There is no period between spraying and general work in the field.
2. 1 hour
3. More than 1 hour
4. 1 day
5. More than 1 day
6. I do not know

C.2 Did you use any Personal Protective Equipment (PPE) in your vegetables production in the last wet and dry season?

1. Yes
2. No, → please go to question C.4

C.3 If yes, what did you use?

	Yes	No	Why do you use PPE?
Overall or long sleeves	1a	1b	1c
Hat	2a	2b	
Mask	3a	3b	
Gumboots	4a	4b	
Goggles	5a	5b	
Other….	6a	6b	
Other….	7a	7b	
Other….	8a	8b	

C.4 How often did you, your family members or any of your workers need medical attention after an injury *on the farm, in the last dry and wet season?* For example fractures or wounds requiring stitches during the following activities:

1. One occasion
2. Two occasions
3. More than three occasions
3. No occasions , → please go to question C.7
4. I do not know

C.5 In which activity was this?

1. Field preparation
2. Planting
3. Weeding``
4. Fertilizer
5. Spraying
6. Harvesting
7. I do not know

C. 6 Did this involve a male or female?

1. Male
2. Female
3. I don't know

C.7 Who is responsible for spraying pesticides at your vegetables crop? (MC possible)

1. Not applicable, I don't use pesticides
2. I do it myself
3. Female workers
4. Male workers
5. I do not know

C.8 How often did you, your family members or your workers experience severe effects within 24 hours after spraying, during the last wet and dry season (e.g. headache, icing, irritation due to exposure of pesticides)?

1. Not applicable, I don't use pesticides
2. One occasion
3. Two occasions
4. More than three occasions
5. No occasions
6. I do not know
7. Never (also not more than 12 months ago)

D: Training experience

D.1 Indicate type and source of training received and your opinion on the training. Only mention the training received during the last dry and wet season.

Name of the training or other activity	Source of training	Month/ Year	Num-ber of training days	Did you com-plete the trai-ning?	Would you recom-mend the training to your neigh-bour?	Did you share obtained knowledge with farmers who did not participate in the training?	Did these farmers change their practice based on the shared know-ledge?	How did they change their practice?
1a	1b	1c	1d	1e	1f	1g	1h	1j
2a	2b	2c	2d	2e	2f	2g	2h	2j
1. vegImpact staff 2. Extension services/Ministry of Agriculture 3. USAID 4. AusAID 5. Pesticide company 6.Other 7. Don't know		E.g. 06/2013		1. Yes 2. No 3 I don't know	1. Yes 2. No 3 I don't know	1. Yes 2. No 3 I don't know	1. Yes 2. No 3 I don't know	

D.2 Who is your main source of information on agricultural practice? (MC possible)

1. Input supplier
2. Buyer
3. Extension worker
4. Other farmers
5. Television
6. Newspaper and other written media
7. Internet
8. VegImpact team
9. Other, please specify….
10. I do not know

D.3 Who is your main source of information on the market? (MC possible)

1. Input supplier
2. Buyer
3. Extension worker
4. Other farmers
5. Television
6. Newspaper and other written media
7. Internet
8. VegImpact team
9. Other, please specify….
10. I do not know

SPECIFIC PMC QUESTIONS on:

1. *Seed(lings) & sowing*
2. *Planting schedule*
3. *Drying products*
4. *Grading products / grade A & B, % of total sold/rejected products*
5. *Marketing, sales channels, price*

E: Inputs

Please indicate type and source of input used for your (NAME CROP PMC) production during wet and dry season:

Dry season

E.1: Fertilizer (chemical) List common/ trade names incl. composition (N,P,K):	Quantity used in dry season 1, 2, 3, ½, ¼, ¾ etc.	Unit and size: (bottle, bag, ...)	Price per unit input (this may be a cost of zero: if so fill out 0)	Total price (quantity * price)
1a	1b	1c	1d	1e
2a	2b	2c	2d	2e
E.2: Organic fertilizers, compost, manure List types, if any:	Dosage used in dry season 1, 2, 3, ½, ¼, ¾ etc.	Unit and size:	Price per unit input (this may be a cost of zero: if so fill out 0)	Total price (quantity * price)
1a	1b	1c	1d	1e
2a	2b	2c	2d	2e
E.3: Pesticides/ herbicides/ insecticides, if any: List common/ trade names:	Dosage used in dry season 1, 2, 3, ½, ¼, ¾ etc.	Unit and size:	Price per unit input (this may be a cost of zero: if so fill out 0)	Total price (quantity * price)
1a	1b	1c	1d	1e
2a	2b	2c	2d	2e
3a	3b	3c	3d	3e
E.4: Planting material, if any List the name of the variety and the origin	Dosage of seeds or young plants bought for dry season	Unit and size:	Price per unit input (this may be a cost of zero: if so fill out 0)	Total price (quantity * price)
1a	1b	1c	1d	1e
2a	2b	2c	2d	2e
E.5: Other input used:	Quantity used in dry season 1, 2, 3, ½, ¼, ¾ etc.	Unit and size:	Price per unit input (this may be a cost of zero: if so fill out 0)	Total price (quantity * price)
1a	1b	1c	1d	1e

Wet season

E.1: Fertilizer (chemical) List common/ trade names incl. composition (N,P,K):	Quantity used in wet season 1, 2, 3, ½, ¼, ¾ etc.	Unit and size:	Price per unit input (this may be a cost of zero: if so fill out 0)	Total price (quantity * price)
1a	1b	1c	1d	1e
2a	2b	2c	2d	2e
E.2: Organic fertilizers, compost, manure List types, if any:	Dosage used in wet season 1, 2, 3, ½, ¼, ¾ etc.	Unit and size:	Price per unit input (this may be a cost of zero: if so fill out 0)	Total price (quantity * price)
1a	1b	1c	1d	1e
2a	2b	2c	2d	2e
E.3: Pesticides/ herbicides/ insecticides, if any: List common/ trade names:	Dosage used in wet season 1, 2, 3, ½, ¼, ¾ etc.	Unit and size:	Price per unit input (this may be a cost of zero: if so fill out 0)	Total price (quantity * price)
1a	1b	1c	1d	1e
2a	2b	2c	2d	2e
7a	7b	7c	7d	7e
E.4: Planting material, if any List the name of the variety and the origin	Dosage of seeds or young plants bought for wet season	Unit and size:	Price per unit input (this may be a cost of zero: if so fill out 0)	Total price (quantity * price)
1a	1b	1c	1d	1e
2a	2b	2c	2d	2e
E.5: Other input used:	Quantity used in wet season 1, 2, 3, ½, ¼, ¾ etc.	Unit and size:	Price per unit input (this may be a cost of zero: if so fill out 0)	Total price (quantity * price)
1a	1b	1c	1d	1e
2a	2b	2c	2d	2e

G: End

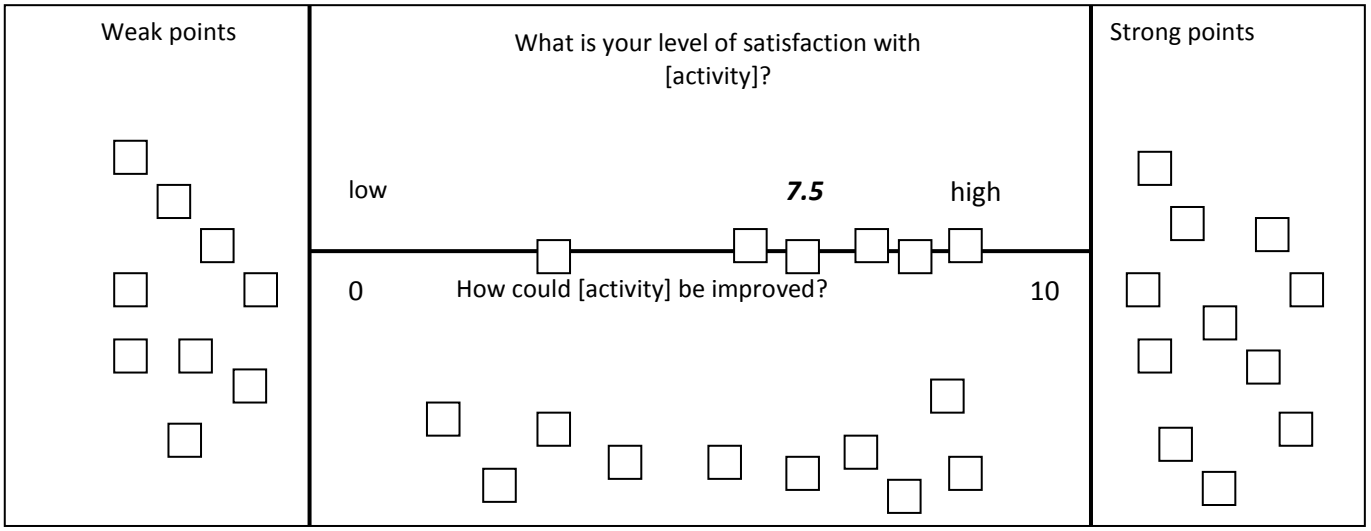
That was the last question in this questionnaire. Thank you very much for your time and effort to help us understand more about vegetable production. Is there anything else you would like to tell us or ask us?

……

……

Please read through the questionnaire to make sure no questions were left unanswered before ending the interview!

Appendix III H-diagram



Appendix IV Outcomes H-diagrams

PMC shallot, Java		
Average score: 7		
Weak	Recommendations	Strong
- Trader not buying grade B -High rejection of shallots by trader - Strict grading at packing house - Problems in selling remainder yields - Angry wife due to losses - Transport sometimes at mid night to meeting point/collection	-Distribution of good seed -Marketing of Grade B / off grade -Rethink planting schedule (dry season) -New varieties Main challenges: High seed price now Pest control Unpredictable weather Low availability of labour	- Pesticides costs reduced -Meals during trainings -Free training -Sept-nov 2013: price of SSN for grade A was > local price -New knowledge for the fields Can share with neighbours when they rent other plot, e.g. i) how to mix pesticides ii) amounts of fertilizers iii) PH soil (6.5 for shallot is good).

PMC Hot pepper, Java		
Average score: 6.3		
Weak	Recommendations	Strong
- Project too short -Only acceptance of grade A -Unaware of content MoU -Loan: too late for planting -Rejection of 10% after post (2nd) grading -Could not sell to other trader -Trauma hot pepper: -harvest failed	Organisational strengthening training needed New members did not follow the trainings Up to date info needed (new viruses) Mediation needed / empowerment group Connection to better trader	-Training IPM/GAPs -Training on group -Self-confidence GAPs increased -Communication with PMC vegImpact -Connection with dinas + follow up (altough disappointing) -Collaboration with other farmers

-unpaid loans		

PMC Broccoli, Sulawesi		
Average score: 8.6		
Weak	Recommendations	Strong
-relation trader, no payment -oversupply market, low price -PMC period too short -started in dry season (wet season is more difficult, better to start in, more to learn) -too little info on performance trader -assist longer than 1 year in marketing (process & learning) -better not to work on contract from the start, get to know each other first	-include other crops (coffee) -do not start immediately on contract basis -new crop: more caution in implementation and needs proof -include organic farming in training	-group is known to government at federal level; -farmers come to visit them to learn from them; -knowledge on broccoli cultivation -free support from government (fertilizer) -group is more active now -more awareness of exposure to pesticide -broccoli consumption (cholesterol)

PMC carrot, Sulawesi		
Average score: 7.9		
Weak	Recommendations	Strong
-relation trader -outstanding debt -sometimes seed not growing, unknown whether it's seed or soil -low yields in the wet season	-extend project period -mediate trader – farmer -more training/time on marketing	-new variety: norma -norma = yields > than local -no competition for norma -price norma > local wortel - group strengthened, more cohesion -more income

-project period too short -do not leave while there are still problems with the trader you linked the farmers with -group needs more capacity on marketing and access markets -more info on safe transportation from grading – supermarket		-better field preparation after training -new knowledge on: fertilizer, pesticide, PH soil & water -the training was given by a good institute (balitsa) - in theory they know about market access and linkages

PMC Beef Tomato, West Java		
Average score: 7.6		
Weak	Recommendations	Strong
-1st trader was not good (price of MoU not paid) - instructions/ recommendations not fast enough when a problem occurred (leading to high production costs) - farmers do not have time / do not make time for good group management - bad / unpredictable weather (leading to low yields) - sometimes difficult to reach Jos - some advice given was not correct (trial advice) -not all follow SOP (farmers are busy, have more than B.T., and labour shortage) - instruct more on what to plant in wet season if B.T. fails (next to wortel & cabbage) -How to effectively protect B.F. in wet season - Due to bad harvest impossible to supply agreed upon volumes to trader - no capital to plant again / bank refused loan	- Farmers should follow SOP - Inspire / motivate farmers (e.g. exchange visit) - more info / training on how to access loans - knowledge on other crops (esp rotation and in wet season)	-good price 2nd trader -good yields 1st planting round -good assistance: Alfa, Dani, Novi, Jos -knowledge to access trader & supermarket -good new local trader, no contract, more flexible on requirements -introduction to beef tomato -better program than other (from dinas/companies), from production --> market - learning by doing: learnt what works (not) with planting schedule, who (not) to include in the group, which location (and which not)

Appendix V Main outcomes interviews PMC stakeholders

Positive	**To improve**	**Remarks**
Idea of PMC approach / ToC is good. Farmers need market, need incentive (guarantee of market & price) to improve practices. Holistic approach: trainings on farmers organisation, cultivation practices & market access. For some farmers/PMCs the introduction to new varieties was very positive. Better price than local varieties and SOP feasible to implement. Some farmer groups still cultivate the introduced variety. For some farmer groups positive to have more awareness on advantages of group performance & some farmer groups strengthened.	More time to implement a project like PMC. at least 3 years. It's too much at the same time, all is new (variety, SOP, group working, continue supply, official contract and trader, quality requirements, etc). A farmer cannot apply all at once and has limited absorption capacity in combination with risk aversion and short time horizon. Start with profound problem and context analysis. Include time for hick ups and a learning curve: from all perspective: implementers, producers, trader, seed companies & correct SOP/technique. Step by step implement the activities, not all at once, too much for a farmer to absorb. Focus first on relations, trust building, clear and transparent communication. Frequent round tables. Strong management with frequent monitoring and close guidance. Start all together with a stakeholder workshop and define strategy together. Include the main parties in selection and strategy. Ensure aligned objectives, perspectives and horizon. Do not tart immediately with a contract. it was too fast. They just started with a planting schedule for example, with the new crop and SOP.	Idea / ToC is good but: a) implementation must be different (see to improve) b) ToC remains challenging in Indonesian context: - Weather circumstances / dry and wet season / planting schedule. Very risky for farmers and they drop out or have losses. And they cannot afford to 'wait' with bare land. - No equal relationship trader / farmer: contract does not make a difference --> legally farmers weak position and bribery from traders (money = power) and no protection from law or court system to protect powerless c) Discussion: which market most suitable and achievable for small scale farmers? d) It might be a risk to start with new varieties, profound feasibility study is necessary which distinguishes between dry and wet season opportunities and challenges. Risk management needed.

	Cautious selection of trader. Experience in years, cash flow, history with farmers; research to other farmer(groups) a potential trader is working with. Selection for farmers: who is ready for this approach, this type of project and market access (with ambitious consumer demands). Including location (suitability crop & distance market/trader) Do not overestimate the contract/MoU. Grading (process) requirements, expectations and transparency crucial for success. Embed the program and activities and link to other parties. For sustainability and more impact.	