PRISMA
Promoting Rural Income through Support for Markets in Agriculture

SAFIRA
Strengthening Agricultural Finance in Rural Areas

Kementerian PPN/ Bappenas

Australian Government

Progress Report and Implementation Plan

Promoting Rural Income through Support for Markets in Agriculture

Strengthening Agricultural Finance in Rural Areas

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List of Abbreviations

PT AHSTI	Asian Hybrid Seed Technologies Indonesia
AIP-Rural	Australian-Indonesia Partnership for Rural Economic Development
ARISA	Applied Research and Innovation Systems in Agriculture
AUD	Australian dollar
BAPPENAS	Badan Perencanaan Pembangunan Nasional – National Development Planning Agency
BPS	Statistics Indonesia
BULOG	State Logistics Agency
BUMDes	Village Business Council
CMT	Core management team
Dana Desa	Village fund
DCED	Donor Committee for Enterprise Development
DFAT	(Australian) Department of Foreign Affairs and Trade
EMS	Environmental Management System
EJ	East Java
EWINDO	East West Indonesia Ltd (company)
GAP	Good agricultural practices
GoA	Government of Australia
GoI	Government of Indonesia
HH	Household
IP	Intervention plan
ISD	Intervention steering document
KPI	Key performance indicator
KUR	Kredit Usaha Rakyat – People's Business Credit – fund for financing small enterprises
M4P	Making markets work for the poor
MIS	Management information system
MRM	Monitoring and Results Measurement
NAIC	Net attributable income change
NTB	Nusa Tenggara Barat – West Nusa Tenggara province
NTT	Nusa Tenggara Timur – East Nusa Tenggara province
PKK	Women's farmer groups
PPI	Progress out of poverty index
PPP	Purchasing power parity
PRISMA	Promoting Rural Income through Support for Markets in Agriculture
PRIP	Progress Report and Implementation Plan
PT	Perseroan Terbatas - Limited Liability Company
RML	Results measurement and learning
SAFIRA	Strengthening Access to Finance in Rural Agriculture
TIRTA	Tertiary Irrigation Technical Assistance
UPSUS	Upaya Khsusus (Special Efforts program of Ministry of Agriculture)
VCF	Value Chain Finance
VfM	Value for Money

Executive summary

PRISMA

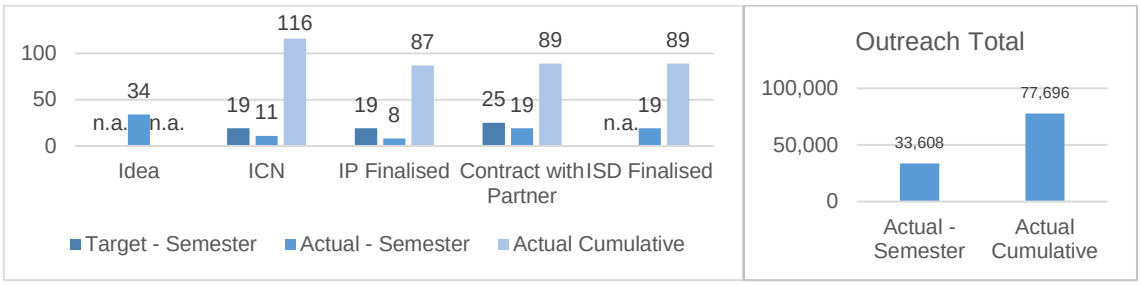
The objective of Promoting Rural Income through Support for Markets in Agriculture (PRISMA) is to increase the competitiveness of 300,000 poor female and male farmers in Eastern Indonesia, resulting in a net attributable income increase of at least thirty per cent by the end of 2018. PRISMA is the largest program under the Australia-Indonesia Partnership for Rural Economic Development (AIP-Rural), a partnership between the Governments of Australia and Indonesia to address the most significant constraints to rural income growth and boost farmer incomes in five provinces in Eastern Indonesia.

One of PRISMA's main challenges during the past six months has been finding the right balance between the project's drive for systemic change and the short-term pressure to stay on the target trajectory and to further improve its sophisticated systems. Other challenges faced were the transition to the new governance structures and the ever-increasing subsidy programs of the Government of Indonesia (GOI).

PROGRESS

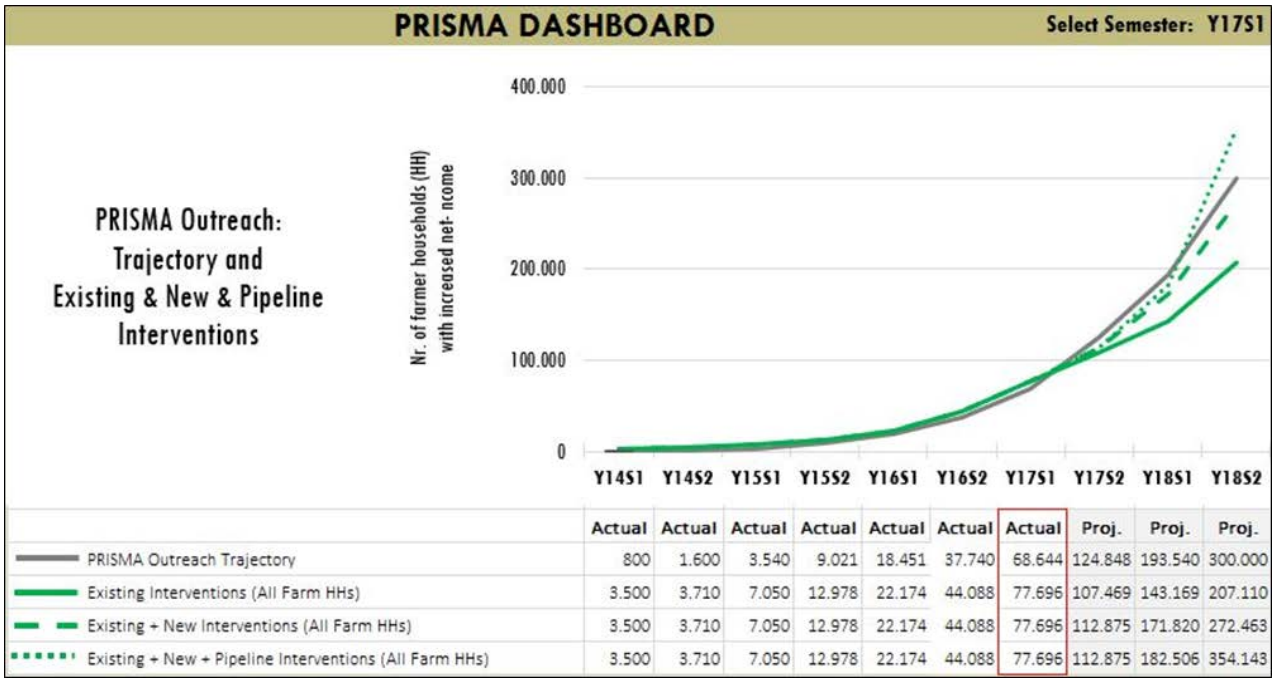
1. **PRISMA did not achieve its intervention development targets this semester, due to the decreased need for ICNs in sectors of experience, and the use of contract extensions for new interventions.** 11 ICNs were developed against a target of 19, 8 IPs against 19 and 19 contracts were signed against 25. 19 Intervention Steering Documents (ISD) were developed and 34 new intervention ideas were proposed.

FIGURE 1: PRISMA ACTUALS AND OUTREACH PROJECTION



2. **Through its existing and new interventions, PRISMA benefited 33,608 farm households-HHs (22,299<$2.5PPP) against a semester target of 25,556**; and in total 77,696 HHs since the inception of the project, 9,052 or 13% above the target trajectory. Contributions above projections came mainly from pigs NTT (crowding-in and copying), soybeans EJ (increased nursery production), maize EJ (indirect impact) and shallots NTB (indirect impact). Some were under projections, i.e. soybean EJ (2nd intervention), mango EJ (unsuccessful marketing), maize NTT (nursery sold to government) and peanuts (low seed quality).
3. **The expected outreach for existing and new interventions is 272,463 HHs (189,569<$2.5PPP) by end of 2018.** This significant increase from the current 77,696 HH outreach indicates that most of these interventions are more mature and scale up interventions.
4. **With an expected 354,143 HHs (247,825<$2.5PPP) by end of 2018, the total projected outreach for existing, new and pipeline interventions is above PRISMA's first phase target.** However, a look at the next two semesters reveals that staying above the outreach trajectory will be a real challenge.

FIGURE 2: PRISMA OUTREACH TRAJECTORY



5. **The average net attributable income change (NAIC) of PRISMA increased to 147% compared to a target of 30%.** The total NAIC per semester was IDR 88.1bn (~AUD 8.8m) for 21,914 HH, to a cumulated change of IDR 210.2bn (~AUD 21.2m).

6. **Other key performance indicators (KPI) reflect continuously increasing levels of sustainability.** Average ISP turnover increased by 32% from S2Y16 to S1Y17 at IDR 79,465,080 (~AUD 7,947), and the number of intermediary service providers (ISPs) grew by 33%, with partners adding 282 new ISPs to their networks this semester. Total partner investment now totals IDR 25,845,578,232 (~AUD 2,584,558), increasing by 47% from last semester's reported investment.

TABLE 1: PRISMA KEY PERFORMANCE INDICATORS

	KPI tracking	Actual cumulative Y17S1	Actual Y17S1
1	# Outreach (all farm HHs)	77,696	33,608
1a	# Outreach (<$2.50 PPP)	54,610	22,299
2	Net Income Impact in IDR (all farm HHs)	210,167,099,549	88,101,438,042
2a	Net Income Impact in IDR (<$2.50 PPP)	160,372,393,900	59,581,614,323
3	# ISPs	1,131	282
4	Increased Turnover ISPs in IDR	89,875,005,724	38,834,279,500
5	# Innovations/Interventions	89	19
6	# Initiatives by Government to improve BEE	77,696	33,608
7	# Intervention Partners (public & private sectors)	54,610	22,299
8	Private Partner co-investment in IDR	210,167,099,549	88,101,438,042

7. **All three value for money indicators improved.** Using total intervention costs, ex-post investment per HH is now at AUD 418, down from AUD 597 at the end of the last semester. Social return on investment increased by 42% to AUD 0.65 and investment leverage as per total intervention costs is 7.95%, up from 6.67% the last semester, and at 39.85% if compared only with direct intervention costs.

8. **M4P training for local governments resulted in the first 2 interventions designed by local governments.** Others are planned, many in Papua, and we plan to develop a strategy to use the Dana Desa program as a potential leverage point for our partners.

MANAGEMENT RESPONSE FOR THE NEXT TWELVE MONTHS

9. **PRISMA will focus on improving the quality and innovation of its interventions.** At the beginning of the second semester of 2017, all portfolio teams will review their strategies, adding new strategies and improve on existing ones to maximise outreach potential.
10. **We will allocate additional resources to the already successful and several promising sectors** (maize, beef, shallots, pigs, vegetables, mung beans, soybean and cashew), planning to hire 20 new staff in the next semester.
11. **PRISMA will continue to discuss with DFAT whether to add rice as a new crop.** Together with SAFIRA and TIRTA, we have commissioned the development of a rice GSD which will be finalised in August and will serve as the basis for these discussions.
12. **A maize sector study will be developed this semester with the goal i) of strengthening PRISMA's collaboration with the local government in Sumenep and ii) of creating the basis for a discussion between DFAT and the GoI about government subsidy programs.** The maze subsidies are expected to increase to levels of 50% or more of the maize cultivation area. This may reduce our partners' incentives in establishing sustainable business models.
13. **During the coming semesters, PRISMA will strive to develop an average of 15 new contracts or contract extensions per semester.** This plan is based on the assumption that we can replace the current portfolio development indicators with this simple indicator. The current indicators are no longer efficient at this stage of the project.

SAFIRA

BACKGROUND

Under AIP-Rural, Strengthening Agricultural Finance in Rural Areas - SAFIRA focusses on agricultural value chain financing to expand small holder farmers' access to finance, with the goal of increasing the incomes of rural small holder farmers in eastern Indonesia. SAFIRA also aims to improve the overall VCF market through enhanced supporting market functions and institutional strengthening at financial institutions. These activities intend to formalise agricultural VCF with selected banks in eastern Indonesia as one way to scale up cost effective and sustainable lending to smallholder farmers.

SAFIRA previously developed a clear strategy for the project to prioritise the institutionalisation of value chain finance among various actors in the market. The three main approaches to achieve this are:

1. Institutional strengthening of financial institutions in terms of core business practices and systems.
2. Developing the VCF consulting and support services market through institutional strengthening of consulting firms and other actors.
3. Knowledge sharing among stakeholders.

Finding the right partner to support the creating of a VCF toolkit to develop consulting and support services has been a key challenge for SAFIRA over the past 6 months. VCF in agriculture requires a holistic and institution tailored approach within a local context, which has proved difficult to find in the Indonesian market. Local partners have not been willing to take on the risk of co-investing in the development of a training toolkit product, and SAFIRA decided to hire an external consultant to develop this and then transfer knowledge to VCF consulting companies, which will deliver trainings to financial institutions at cost.

Although SAFIRA has built partnerships with financial institutions and agribusinesses, we have not sufficiently examined the small and medium enterprises (SMEs) impacted by our activities. Defining SMEs and identifying them has not been a priority in the first few years of the project, however this is improving with a now solid team in place. Involving these actors simultaneously with financial institutional development will be key in achieving our outreach targets by the end of 2018.

PROGRESS

1. **SAFIRA this semester recorded farmer households benefitting from intervention activities for the first time, 189 HHs (134 HH<$2.50PPP),** mainly from maize NTB.
2. **SAFIRA also had a first look at net attributable income change (NAIC) per farmer HH, at IDR 984,269,829 (AUD 98,427) this semester and IDR 5,207,777 (AUD 521) NAIC per farmer, increasing income by 60%.**
3. **SAFIRA currently has 7 interventions, which are expected to benefit 727 farmer HHs (474 HH<$2.50PPP) at the end 2017, and 6,115 HHs (3,978 HH<$2.50PPP) end 2018, just above the target trajectory of 6,000.** A large portion of this outreach is expected to come from the new maize NTB BISI/YARO credit scheme in collaboration with PRISMA, as well as institutional strengthening interventions with a few different partners.
4. **Current and pipeline interventions are projected to benefit 3,449 farm HHs (2,197 HH<$2.50PPP) by the first semester of 2018, increasing to 9,321 HHs (6,043 HH<$2.50PPP) at the end of 2018.**
5. **Projected outreach accelerates during 2018 mainly because expected results from loans will only be apparent after farmers repay loans after crop cycles conclude, and as non-sector specific institutional strengthening interventions develop.** The projected outreach is optimistic, and is justified by the expected benefits of wider outreach from institutional strengthening, selected partners pledging clear commitments to achieve our goals, and synergies with other AIP-Rural projects that provide additional support to mitigate risks to achieving targets.
6. **Private sector partners committed IDR 704,212,980 (AUD 70,421) this semester.** The bulk of these commitments are from 2 banks and 1 agribusiness; Bank Sinarmas, Bank BRI and PT BISI. Partnerships with PRISMA, TIRTA and ARISA have proven to be instrumental to faster-achieved partner buy-in, as SAFIRA can leverage the existing relationships and trust already built by other AIP-Rural personnel as well as have experienced insights into the financial challenges of the value chain actors.

MANAGEMENT RESPONSE FOR THE NEXT TWELVE MONTHS

SAFIRA has already identified a consultant to develop and deliver VCF training, providing a detailed training manual and toolkit to support the development of VCF in Indonesia. The consultant is expected to develop and deliver the training modules to at least 2 local financial institutions in Indonesia by the end of 2017. The training manual will synthesise existing frameworks for VCF into a format that would appeal to banks, and incorporate key lessons learned from previous SAFIRA training and published VCF manuals.

The first deliverable of two training modules is expected in August/September. Once the training manual is complete, additional VCF consulting companies will be tasked with delivering the training to financial institutions and other stakeholders at the beginning of 2018, initially through our institutional strengthening agreements.

SAFIRA will aggressively pursue the strategy developed last semester, and will add 3 new staff next semester and build a pipeline in advance of their onboarding to speed project delivery. The finance industry is already beginning to see the opportunities for VCF and the rationale behind it, and SAFIRA is confident that our additional staff capacity, institutional strengthening and knowledge sharing strategy will further expand the additional partner uptake we are seeing and ultimately benefit farming households.

1 Broader policy, institutional and environmental context

The Indonesian economy is expected to grow by an average of 5% in terms of real GDP from 2017 to 2021, with private consumption expanding by 5.2% a year[1]. The GOI has prioritised improving the investment

[1] according to the Economist Intelligence Unit (EIU)

regulatory environment, and is expected to announce a further set of policies easing investment this semester. However, agricultural trade is heavily restricted by non-tariff barriers like import quotas, strongly affecting AIP Rural's maize and mung bean sectors. As a result, farmers are planting more corn following the import ban and rising prices.

Consumer and food prices have remained stable, as the government has been making efforts to stabilise inflation. According to Statistics Indonesia (BPS), consumer price inflation in June was at 4.4% year on year. Food prices in June, particularly vulnerable during Ramadan, increased only 2.4% year on year. This is regarded as quite low, as food prices are known to increase by 7-8% historically. This stability can be traced to better harvests this year after El Nino ended, some relaxed import quotas, and reforming of the state logistics agency BULOG, a part of the Food Task Force of government ministries that ensure food prices remain stable.

In July 2017, to support the Kredit Usaha Rakyat (KUR) program subsidy, the GOI launched ultra-micro financing (Pembiayaan Ultra Mikro/ UMI), allocating IDR 1.5 trillion to the program. The UMI financing program is a part of a government program started in 2017 aimed at financing community businesses, and is complementary to the KUR Program. Unlike the KUR program, UMI will be implemented by cooperatives with a total loan amount per member below IDR 10 million.

In June 2017, The Ministries of Agriculture Indonesia partnership together with Ministries of State Owned Enterprises and the district government of Sumenep launched Farmers Cards (Kartu Tani) in Sumenep. Kartu Tani is a means to provide farmer households access to integrated banking services such as savings, transactions, loan disbursement and also serves as a subsidies card. Approximately 96,098 farmers received the farmers' cards at the launch in Sumenep. Bank BNI will manage the Kartu Tani funds in East Java, and aims to distribute the cards to 1.3 million farmers in East Java in 2017.

In 2017, the budget for subsidised fertiliser covers 37.77% of the total non-energy subsidy, or IDR 31.2 Trillion, while the subsidised seed budget is IDR 1.2 Trillion, which includes free maize seeds for 3 million hectares, covering around 75% of the cultivated maize area. Private companies have responded to these subsidies by focusing more on supplying the government programs and have slowed down activities in the open market. As a result, promotional activities and delivering GAP services are affected. PRISMA plans to collaborate with both local government and seed companies on GAP information dissemination to farmers using the subsidy channels, as well as reaching fertiliser subsidy recipients through the Kartu Tani program.

The government allowed the import of Indian Buffalo Meat (IBM) last year as a cheaper alternative to imported beef, and the BULOG is authorised to import over 110,000 tonnes of IBM this financial year. However, the cheaper price of IBM is not being passed on to consumers by wholesalers and retailers. While cattle interventions are not affected by lower prices, the impact may eventually be felt by the end of 2018.

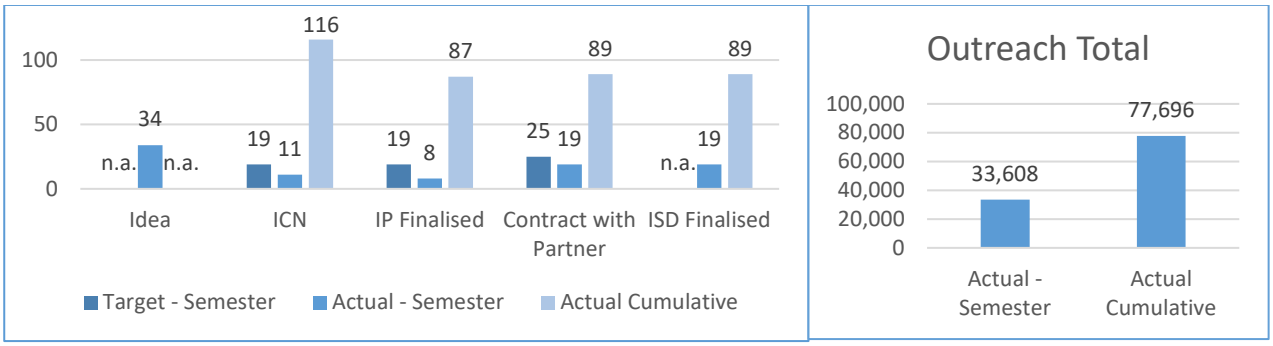
The La Niña phenomenon and a locust outbreak (hypothesized to be caused by El Niño and La Niña in Sumba, NTT) were the major environmental risks facing the program this semester. The program will continue to monitor and assess such risks of increased pest attacks from changing climate conditions, which could affect crop planting and harvest cycle, and crop protection inputs.

2 PRISMA - Portfolio management and monitoring

2.1 Portfolio development progress

PRISMA did not achieve its intervention development targets this semester. The main reasons for this are a decreased need for Intervention Concept Notes (ICN) in sectors of experience, the use of contract extensions instead of new interventions, changed plans of partners and to some degree over optimistic planning. This semester, 11 ICNs were developed against a target of 19, 8 IPs against a target of 19 and 19 contracts were signed with partners against a target of 25. 19 Intervention Steering Documents (ISD) were developed and 34 new intervention ideas were proposed.

FIGURE 3: PRISMA INTERVENTION DEVELOPMENT



Overall, the new interventions developed this semester strive to reach 65,353 smallholder farm households (HH) by the end of 2018, 41,545 of which are below the USD 2.50 purchasing power parity poverty line (<$2.50PPP). This number almost equals the trajectory target for this semester up to June 2017, which shows that the new interventions show promise of fast scale-up: the June 2017 cumulative figure (77,696 HHs) was achieved in 3 years, and the projection for the 19 new interventions are expected to yield results within the next 18 months.

The new interventions are focused on expansion both geographically and with existing partners to other crops and products, including in pigs NTT, maize EJ and NTB, shallots EJ and NTB, mango EJ and NTB and vegetables EJ, NTB, and NTT. Some new interventions are the result of redefining the strategy and business model after closing interventions in the sub-sector, for example in coffee NTT, mango EJ and NTB, and mung beans EJ. This is indicative that PRISMA's interventions are maturing and demonstrating systemic change as partners adapt initial business models to market conditions.

2.2 Progress of Key Performance Indicators

OUTREACH

PRISMA benefited 33,608 HH (22,299 HH<$2.50PPP) during the first semester of 2017, 371 HH over the semester projection of 33,237 HH, and 9,052 over the semester target of 24,556. This amounts to a cumulative 77,696 HH (54,610 HH<$2.50PP) since the beginning of the project, 13% above the target trajectory.

- Pigs NTT +4,436 HH (+45% above projections); pigs NTT shows signs of accelerating crowding-in and systemic change.
- Soybean EJ (Commercialisation) +2,158 (+66%); our partner nurseries were able to increase their production capacity beyond our expectations. However, the goal of creating a commercial market for quality seed seems currently beyond the reach of PRISMA. Most nurseries now target the subsidy system and only a small part of the production is sold commercially.
- Maize EJ +1,818 HH; we did not project any outreach for this semester, but started measuring indirect impact; despite this positive development, maize EJ is also experiencing market distortions through the seed subsidies.
- Shallots NTB +1,767 HH; EWINDO increased sales of its True Shallot Seeds (TSS) using the PRISMA business model in other provinces and at the request of the head office in the Netherlands, and is even selling in other countries such as India; we did not project any outreach for this semester, but began measuring outreach from sales in Sumatra.
- Beef EJ +291 HH (+145%); while these numbers are still small, the current outlook for beef EJ has become much brighter as feed partners have seen success in the pigs intervention and would like to expand the business model into cattle feed (for example, partner JAPFA Comfeed).

- Soybean EJ (1SNB) -1577 (-75%); this intervention was closed in early 2016, and has been kept open for monitoring purposes only. The low outreach count was due to crop failure caused by flooding in the Trenggalek area.
- Mango EJ -1,556 HH (-58%); unfortunately, the social marketing campaign did not result in the expected impact. One of the main reasons is the role mango trees play in the livelihood of farmers; many HHs rent their trees to collectors and receive an advance payment for several years. Other reasons were the low commitment of one of the partners and the heavy La Nina rainfall that destroyed many flowers.
- Maize NTT -1,076 HH (-15%); the targeted projection was above 7,000, but this year indirect outreach was recorded as a result of the government buying seed from our partners for a seed distribution program. The underachieved projections are due to a lower user to benefit ratio and we could not verify all beneficiaries, as the local Dinas did not share the list of subsidy farmers.
- Peanut NTT -1,056 HH; this sub-sector faced difficulties with the quality of the seed produced by our nurseries under the supervision of co-facilitator YMTM and their impact measurement. We decided to move to in-house implementation.

The variance between total projections and actuals this semester is 0.5%, which we believe is predominantly the result of the projection tool developed last semester.[2] However, PRISMA will have to review how variance changes over the next semesters to make a stronger conclusion on the effectiveness of our projection method. Variance at an intervention level still has room for improvement, which will be critical in key sectors that significantly contribute to the project's outreach.

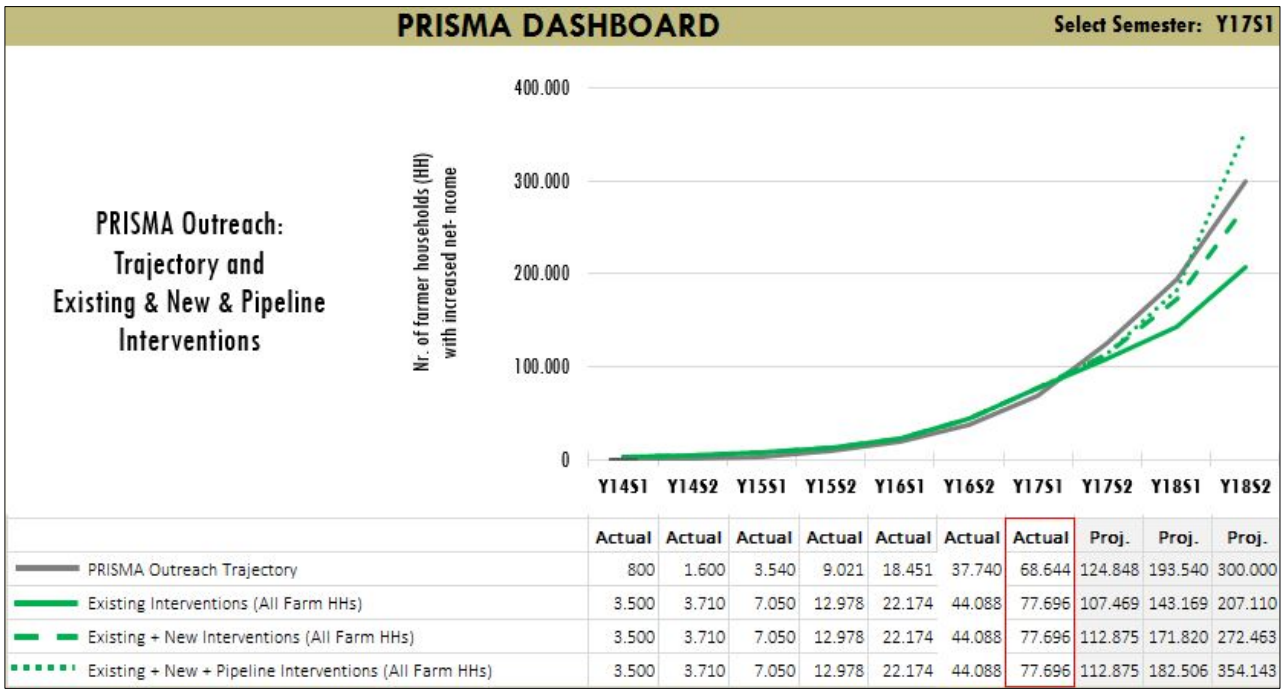
The expected cumulative outreach for existing and new interventions is 112,875 HH (80,439 HH<$2.50PPP) by the end of 2017 and 272,463 HH (189,569HH <$2.50PPP) by end of 2018. The 2018 projections are an improvement on the previous PRIP's reported 206,719 HH by the end of 2018. This reflects the viability of the projection method developed last semester and improved strategies to achieve outreach both in existing and new interventions.

The total projected outreach for existing, new and pipelines interventions is now at 354,143 HH (247,825 HH<$2.50PPP) by the end of 2018, 18% above the phase target, 5% below the projected 2018 outreach in June 2016 (when projections were over optimistic), and 14% above the projections made in the last semester PRIP.

However, we expect reported outreach to be under the target trajectory by approximately 10,000 HH at the end of the next two semesters. The main reason underlying these expected projections under the target is due to PRISMA now estimating indirect outreach at an intervention level rather than at a portfolio level, which requires more scrutiny in intervention-by-intervention projections. The next semester results will indicate which of the two methods is more accurate.

[2] The new projection tool allows standardised and more precise projections. The new methodology operates with clearer and documented assumptions for each variable in each intervention, and uses overlap and success rates of 15% each and a farm level copying ratio (indirect outreach) of 33%.

FIGURE 4: PRISMA OUTREACH TRAJECTORY



	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Proj.	Proj.	Proj.
PRISMA Outreach Trajectory	800	1.600	3.540	9.021	18.451	37.740	68.644	124.848	193.540	300.000
Existing Interventions (All Farm HHs)	3.500	3.710	7.050	12.978	22.174	44.088	77.696	107.469	143.169	207.110
Existing + New Interventions (All Farm HHs)	3.500	3.710	7.050	12.978	22.174	44.088	77.696	112.875	171.820	272.463
Existing + New + Pipeline Interventions (All Farm HHs)	3.500	3.710	7.050	12.978	22.174	44.088	77.696	112.875	182.506	354.143

INCOME

The increase in cumulative, average net attributable income change (NAIC) per farm household is 147%, up from 139% at the end of 2016. As we changed the method of calculation in S2Y16[3], it is too early to interpret of this change.

The total NAIC for all farm HHs in S1Y17 is IDR 88.1bn (AUD 8.8m), with NAIC per farmer at IDR 2,704,993 (AUD 270) compared to IDR 2,768,682 (AUD 277) in S2Y16. The average NAIC per farmer HH below $2.50PPP is IDR 2,809,287 (AUD 281), compared to IDR 3,068,142 (AUD 307) in S2Y16. The level of change ranges from IDR 404,193 in soybeans EJ (AUD 40; to be closed) to IDR 8,902,459 in beef EJ (AUD 890; to be scaled up). One intervention is below IDR 1m, five between IDR 1m and IDR 2m (AUD 100 to 200) and 10 above IDR 3m (AUD 300), indicating in almost all cases there are sufficient to very strong financial incentives for farmers to change their behaviour and to copy those who have already done so.

The pigs NTT, maize EJ and maize NTT sub-sectors were large contributors to NAIC as in the last semester: Pigs NTT benefitted 13,591 farm HHs increasing income by 300% (IDR 4.19m); maize EJ 1,818 HHs increasing income by 220% (IDR 1.69m) and maize NTT 6,235 HHs increasing incomes by 111% (IDR 1.80m).

OTHER KPIS

Average ISP turnover increased by 32% from S2 2016 to S1 2017 at IDR 79,465,080 (AUD 7,947), indicating a strong incentive for these enterprises to continue promoting innovations. The cumulative number of intermediary service providers (ISPs) grew by 33%, with partners adding 282 new ISPs to their networks this semester.

Total partner investment now totals IDR 25,845,578,232 (AUD 2,584,558), increasing by 47% from last year (IDR 17,537,197,206 in S1Y16). PRISMA doubled the number of its partners and the value of co-investment in S1Y17 to 12 additional partners investing IDR 8,308,381,026 (AUD 830,838), compared to last semester with 6 additional partners investing IDR 4,551,774,501 (AUD 455,000).

[3] The previous method before S2Y16 had yet to account for a number of factors: there are potentially two or more crop cycles per year; the weighted average NAIC does not only come from one year or one cycle, but from all implementation years and cycles of an intervention, plus two years of potential copying and crowding-in after the intervention ends (stacking effect); there can be multiple sources of increased income (overlap of interventions); and the previous calculation method did not include corrections for under or overestimated income in earlier crop cycles.

TABLE 2: PRISMA KEY PERFORMANCE INDICATORS

	KPI tracking	Actual cumulative Y17S1	Actual Y17S1
1	# Outreach (all farm HHs)	77,696	33,608
1b	# Outreach (<$2.50 PPP)	54,610	22,299
2	Net Income Impact in IDR (all farm HHs)	210,167,099,549	88,101,438,042
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3	# ISPs	1,131	282
4	Increased Turnover ISPs in IDR	89,875,005,724	38,834,279,500
5	# Innovations/Interventions	89	19
6	# Initiatives by Government to improve BEE	10	3
7	# Intervention Partners (public & private sectors)	77	12
8	Private Partner co-investment in IDR	25,845,578,232	8,308,381,026

VALUE FOR MONEY (VFM) INDICATORS

The first iteration of value for money calculations were completed by the MIS team this semester and all value for money indicators indicate a positive trend (see Annex 7). The calculations for 3 main indicators – investment leverage[4], social return on investment (SROI)[5] and investment per farm household[6] – are made using 3 levels of costs: direct intervention costs (PRISMA investment along with partner investment as stated in a MoU or contract), total intervention costs (which includes indirect costs such as travel and salaries), and program level costs (including all intervention costs plus program overhead and administration costs). The calculation this semester encompasses an ex-post assessment of actual figures up until May 2017. An ex-ante assessment using projected and estimated values and numbers will be completed during the next semester.

Ex-post investment against total intervention costs per HH is now at AUD 418, down from AUD 597 at the end of the last semester. If we assume that we will spend approximately 75% of PRISMA's overall budget on interventions (AUD 55m), this should come down to around AUD 180 towards the end of the phase if we reach 300,000 and to AUD 155 if we reach the current projection of 354,000 HHs.

Social return on investment (SROI) increased by 42% to AUD 0.65 (total intervention costs). If we can maintain the level of income increase for farm HHs, we expect this to reach approximately AUD 1.50 by 2018.

Investment leverage as per total intervention costs is 7.95%, up from 6.67% the last semester, and is at 39.85% if compared only with direct intervention costs. As discussed during the mid-term review, the latter should increase to at least 50%. Whether this is realistic is difficult to predict, especially if interventions in Papua, where co-investment is hard to mobilise, are included.

Farm households themselves invested IDR 64,417,231,724 (AUD 6,417,232), almost three times as much as our partners (IDR 2,584,558,000 or AUD 2,584,558). Considering the significance of this investment, as well as the fact that farmer HHs are considered a part of the private sector, we propose including this in the future calculation of investment leverage.

2.3 Portfolio analysis

Pigs NTT is the clear star sub-sector, not only in terms of outreach (20,447 HH), but also in terms of systemic change, and maize, beef, shallots and vegetables look to be promising sectors in the near future. The 9 current interventions in these sectors will be pushed and others are under development. 34 interventions are now in the category "let flow" and 15 currently need revision and improvement.

[4] Investment leverage for direct intervention cost: actual value of partner investment leverage (KPI8) / actual value of direct intervention costs.
[5] SROI for direct intervention cost: actual value of net income increase (KPI2) / actual value of direct intervention costs.
[6] Investment per farm HH for direct intervention cost: actual value of direct intervention costs / number of farm HHs with increased income (KPI1).

The July 2017 portfolio review resulted in dropping 6 underperforming interventions[7] and will allow 13 others to close. Many of these closing interventions are concluded contracts, replaced by new contracts with more refined partner and business model strategies, such as in mango and coffee.

PRISMA also identified sectors with outreach potential using direct and indirect impact strategies moving forward. These include coffee, seaweed, mung bean, soybean, cashew, coconut, mango, cocoa and achieving outreach through emerging local government designed interventions resulting from the government M4P training program.

PRISMA currently has 67 on-going interventions (up to S1Y17) in 30 sub-sectors, with a geographic distribution of 24 interventions in EJ, 16 in NTB, 21 in NTT, 3 in Papua and 3 in West Papua. The QMT is now integrated in the MIS system, allowing for easier input and faster consolidation of the QMT. PRISMA's 4 portfolios are in the process of restructuring to 5 portfolios, with an additional Indonesian HoP promoted from Principle Business Consultant (PBC) to lead Portfolio 5 (coffee NTT, seaweed NTT and West Papua).

Two aspects of systemic change are appearing among PRISMA portfolios, at a sub-sector level (more partners per sub-sector) and a partner level (working with one partner across multiple subsectors). Sub-sector systemic change typically is a result of crowding-in, such as in Pigs NTT with 5 current partners and 5 in the pipeline and beef EJ with 3 current partners and 6 partners in the pipeline. These two interventions also cross-benefit each other, as feed and animal health partners from the pigs intervention have expressed interest in expanding their businesses to the cattle industry. Maize EJ and NTT are also showing signs of crowding-in, with 4 major companies now working with PRISMA in maize EJ and 2 in the pipeline, and additional seed producers have approached PRISMA in maize NTT. Coffee and mango interventions were closed and new scale-up interventions with multiple partners are starting this semester. At a partner level, PRISMA is working with 4 major partners in 30 interventions, and this pattern is expected to increase this semester with additional partners.

Indirect outreach accounted for 31% of cumulative outreach in S1Y17, or 24,345 out of 77,696 HHs. The total indirect outreach from partners replicating the business model in other provinces or applying business models/products to non-target crops is 7,657, which is a promising sign of partners successfully incorporating business models into their corporate strategies.

Indirect outreach from crowding-in is strong in the pigs NTT subsector, benefitting 5,401 HHs, and in maize EJ, benefitting 1,818 HHs. Maize NTT (6,235 HH) and soybean EJ (5,404 HH) are examples of indirect outreach from partners selling through other channels, such as strengthening their capacity to produce and sell to government subsidy channels, and soybean EJ has also recorded farmers applying pest management technology to other crops such as maize, peanut and rice. EWINDO began selling TSS seeds in Sumatra, which recorded 1,767 benefitted farm HHs in that province, and the company even decided to expand the TSS business model to another Asian country.

2.4 Challenges and lessons learned

The impact assessments this semester revealed that PRISMA can potentially have a large impact on market systems and even in provinces beyond our reach. Much of this impact has been achieved through key committed partners that are more likely to capitalise on successful business models by integrating them into the company's overarching corporate strategy.

Partners are also beginning to independently develop new business ideas and to lead in designing business models. For example, Indokom led the coffee scale-up plan and committed to investing in processing facilities as part of their business plan. Syngenta approached PRISMA at the end of 2016 after seeing the success of PT AHSTI, and subsequently entered into a partnership whereby the company leads the business model and investment, and where PRISMA is only supporting evaluation.

[7] The dropped interventions include extension services and ICT in EJ and NTB, the soy doctor intervention in soybean EJ and the 3 Anggur Merah interventions,

During the last year, we have given too much attention to outreach and developing sophisticated systems instead of a broad set of elements to achieve systemic change. We fully understand the reasons for the pressure on the first two important aspects, and it is also obvious that clear signs of systemic change are visible. With a more experienced team and an increased understanding of our sectors, we should be focussing on how we implement and how we can complement our current strategies with more innovative ones.

One of the conclusions from this semester's strategy retreat was that we need more innovative promotion strategies to ensure that we reach our phase goal. In too many interventions, such as maize, coffee, cocoa, vegetables, soybeans, we rely strongly on demonstration plots. Although this is important, other promotion models such as the "market storms"[8] in the pigs and beef interventions, with more innovative marketing strategies, are crucial. The market storms are successful because they leverage an existing place and time where a large number of farmers already meet to promote our products and services. Demo plots are relatively costly and seldom reach more than 50 farmers.

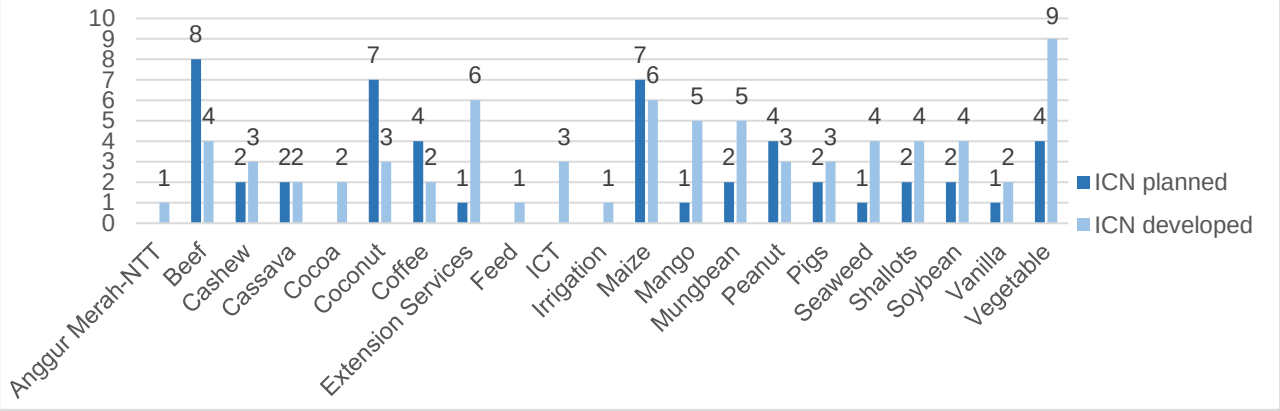
Better promotion strategies will be key to increasing farm household access to partner products and services. Public gathering spaces should be better targeted and events made more attractive to further engage with more farmers. Other media use such as SMS blasts and radio should also be explored in detail, depending on farm HH access to these types of media.

At the internal project level, strategies to formalise cross sector and partner teams should be explored. More collaboration among portfolio mentors is necessary, and portfolio teams should increase their awareness on what other types of impact and systemic change are already happening in their sectors.

At a partner level, each portfolio should re-define their partner strategies, working on partner level organisational changes, i.e. help partners to define strategies for other provinces and build strategic alliances with successful partners. We have secured large key committed partners and we should leverage this more, and aim to convert other partners to strategic partners.

As mentioned in PRIP S1Y16, portfolio development measurements, such as ICN and IP targets, were originally meant as leading indicators. While they were valuable at the stage of portfolio build-up, as PRISMA grows these indicators no longer sufficiently reflect the project's success. As the below figure shows for ICN development, the correlation between plans and actual development is low. The same applies for IP and contract development. We therefore propose to no longer track these indicators but rather focus on maintaining a level of contract development that ensures a constant portfolio size and assessments of partnership quality.

FIGURE 5: PRISMA PORTFOLIO DEVELOPMENT PROJECTION AND ACTUALS



[8] Instead of selling feed only through retail shops, our partners and ISPs now also travel from traditional market to traditional market to socialize the use of feed and to sell to farmers. To attract the attention, often veterinaries are invited to these events and answer questions from farmers.

2.5 Management response

PRISMA will focus on improving the quality and innovation of its interventions. This includes learning from our success in pigs, striving for joint strategy development with partners who have already successfully collaborated with PRISMA in a sub-sector and expanded to another (i.e. EWINDO, Novelvar, Rainbow and Nufarm). At the beginning of the second semester of 2017, all portfolio teams will review their strategies, adding new strategies and improve on existing ones so as to maximise outreach potential.

Aside from strengthening strategic engagement, additional outreach can be achieved by improving our understanding of other avenues to both direct and indirect outreach and include them in our projections. We will also intensify activities in focus sectors (maize, beef, shallots, pigs, vegetables, mung beans, soybean and cashew), to which we will allocate additional resources. With the addition of Cohort 5, PRISMA will add about 4 more members per team, which will be carefully allocated taking into account factors such as focus sectors and outreach per staff. Management also will strengthen the ability of all staff to better recognise and capture signs of systemic change.

We will intensify our interventions working on fertiliser and soil treatment issues. In several sub-sectors, opportunities for treatment emerged from cooperating with partners like Nufarm, BASF, Rainbow, NASA and FMC. As these interventions emerged out of specific crop sectors, they are managed by staff from three different portfolios. In line with our organisation matrix, we will keep this structure, but the new Head of Portfolio 5 will act as a coordinator.

PRISMA will continue to discuss with DFAT whether to add rice as a new crop. Together with SAFIRA and TIRTA, we have commissioned the development of a rice GSD which will be finalised in August and will serve as the basis for these discussions. If SunRice, a quasi-monopoly rice producer from Australia, decides to enter the Indonesian market, this may provide a great opportunity to work in this sector. Preliminary indirect contact with the company indicates that there are interested in working with PRISMA.

A maize sector study will be developed this semester with the goal i) of strengthening PRISMA's collaboration with the local government in Sumenep and ii) of creating the basis for a discussion between DFAT and the GoI about government subsidy programs. The maze subsidies are expected to increase to levels of 50% or more of the maize cultivation area. This may reduce our partners' incentives in establishing sustainable business models. To address this, we have already formulated a public-private strategy with the agriculture department in Sumenep.

During the coming semesters, PRISMA will strive to develop an average of 15 new contracts or contract extensions per semester. This number is slightly below the average number of contracts signed per semester over the past 2.5 years. Contracts and contract extensions are chosen as leading indicators because i) successful interventions will attract additional partners to PRISMA and to follow-up intervention areas, thereby leading to systemic change; and ii) dropped sub-sectors or interventions will not lead to follow-contracts, thereby freeing up resources that can be invested in more successful strategies and partners.

3 SAFIRA - Portfolio management and monitoring

3.1 Portfolio development progress

At the end of the first semester 2017, SAFIRA has seven active interventions, with seven interventions in the pipeline. SAFIRA has continued to collaborate with other AIP-Rural projects in order to take advantage of project synergies, and to focus on achieving outreach and spread the introduction of value chain finance concepts to partners. SAFIRA has been collaborating with PRISMA in beef EJ through Bank Sinarmas (which has turned out to be a much larger opportunity for SAFIRA to support institutional strengthening across sectors for the bank) and with ARISA in Lombok, NTB with maize farmers through Bank NTB. SAFIRA finalised three new interventions this semester, all in collaboration with PRISMA, in the coffee NTT sub-sector (which will also be a larger opportunity in institutional strengthening), in maize NTB with BISI, and in potatoes EJ with credit

union Sawiran. In the pipeline, SAFIRA plans to continue cross-project collaboration, including with PRISMA in an inputs-focused maize intervention and potentially in the vegetables sub-sector.

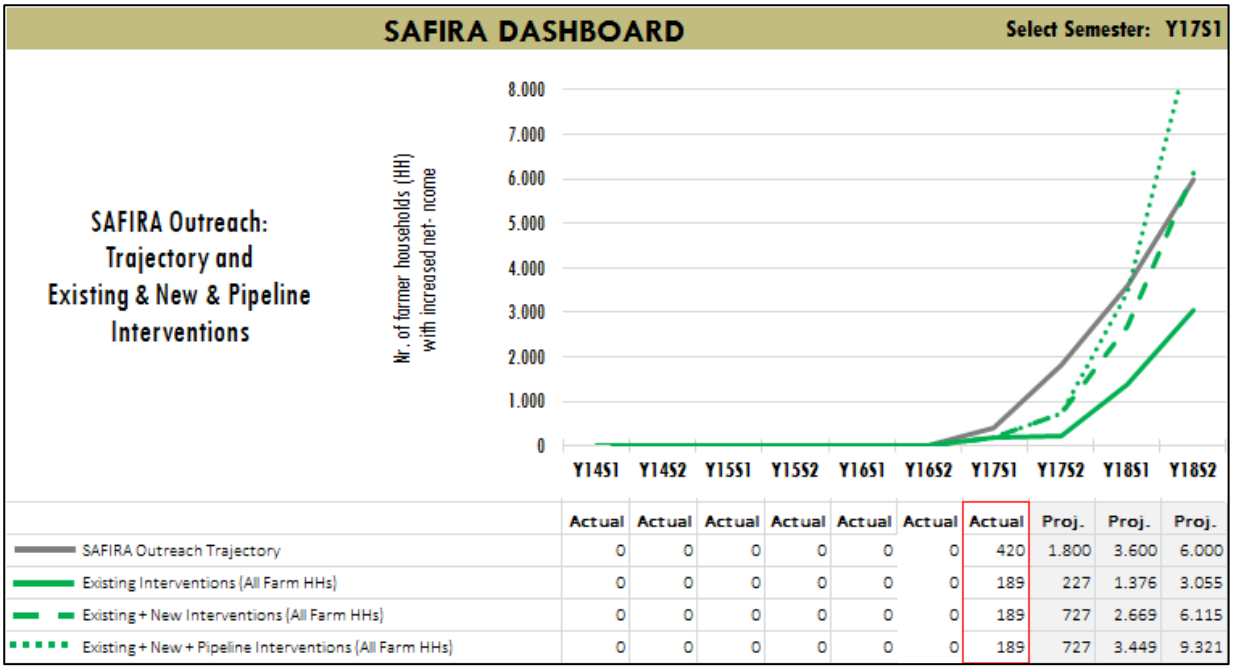
SAFIRA is now integrated with AIP-Rural, and this semester we have been able to accelerate intervention development by using already developed Growth Strategy Documents (GSD), Intervention Plans (IP) and market assessments of existing AIP-Rural interventions. This aligns with SAFIRA's strategy to capitalise on PRISMA's experience to increase efficiency in analysis before intervention design and to select committed partners quickly. SAFIRA has also benefitted from the AIP-Rural mentoring program, and this semester a PRISMA HoP provided mentorship on two SAFIRA interventions (in goats EJ and maize NTB), with the SAFIRA team leader reciprocating by providing mentoring to PRISMA's Anggur Merah NTT interventions.

Human resources and staff capacity have improved SAFIRA's ability to deliver impact and project future outreach. Results Measurement and MIS at SAFIRA are now fully integrated with AIP-Rural, which has improved the efficiency and quality control of results measurement at both an intervention level and aggregate level. The team now has four dedicated staff, with three additional staff joining from Cohort 5 in September. The new staff were selected due to their expertise and experience in SMEs, business development and finance in Indonesia, which will further strengthen SAFIRA's capacity to implement project objectives.

3.2 Progress of key performance indicators

The first semester of 2017 is the first period in which SAFIRA recorded farmer households benefitting from intervention activities, 189 HHs (134 HH<$2.50PPP) mainly from maize NTB. Of these, three farmer households also benefitted from the Bank Sinarmas intervention in beef EJ. The maize NTB loan cycles are generally faster, as maize is a 4 to 5 month crop, and repayment is not tied to the loan. However, other loan cycles are typically 6-7 months long from loan disbursement, so we will not see results from our current efforts until the next two semester results materialise. Furthermore, farm HHs will first have to repay the loan before we can capture their income increase. We expect to achieve more outreach in other existing interventions by the end of the project, as SAFIRA now has the staff capacity to guide each intervention and closely collaborate with partners.

FIGURE 6: SAFIRA OUTREACH TRAJECTORY



	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Proj.	Proj.	Proj.
SAFIRA Outreach Trajectory	0	0	0	0	0	0	420	1.800	3.600	6.000
Existing Interventions (All Farm HHs)	0	0	0	0	0	0	189	227	1.376	3.055
Existing + New Interventions (All Farm HHs)	0	0	0	0	0	0	189	727	2.669	6.115
Existing + New + Pipeline Interventions (All Farm HHs)	0	0	0	0	0	0	189	727	3.449	9.321

SAFIRA expects the three new and four existing interventions to benefit 727 farmer HHs (474 HH<$2.50PPP) with increased income by the end of 2017, and 6,115 HHs (3,978 HH<$2.50PPP) by the end of 2018, just above the target trajectory. A large portion of this outreach is expected to be attributed to

the new maize NTB BISI/YARO credit scheme in collaboration with PRISMA, as well as institutional strengthening of BPR Pesisir Akbar in NTB and Bank Sinarmas. We are confident in the higher projections in these interventions, and these partners have shown high commitment, such as BISI's pledge to set loan targets in 2017 and 2018, and Bank Sinarmas' financial contribution to VCF (over IDR 367 million).

Adding pipeline interventions to projections, SAFIRA expects an outreach of 3,449 farm HHs (2,197 HH<$2.50PPP) by the first semester of 2018, increasing to 9,321 HHs (6,043 HH<$2.50PPP) at the end of 2018 when the benefits of loans are more apparent and measurable. Out of the 7 pipeline interventions, 2 are expected to contribute a sizeable portion of projected outreach. This includes an institutional strengthening intervention with BPR Arta Kencana, a partner with 4 branches in East Java. Due to the partner's experience in providing loans in agriculture through traditional finance, SAFIRA sees an opportunity to use this experience to link the partner to input suppliers and improve the partner's capacity in value chain finance. SAFIRA also expects to start a bridging loan for vegetables farmers in collaboration with PRISMA and partner Tanaoba Lais Manekat (TLM) financial group. SAFIRA will provide VCF training to the group, specifically to TLM Rural Bank, TLM Foundation, and TLM Loan & Saving Cooperatives, and will link them to the PRISMA vegetables NTT partner EWINDO. EWINDO will provide training to TLM on GAP and on the SIPINDO application to understand the sector and provide loans to EWINDO farmers.

Projections accelerate during 2018 mainly due to expected results from loans issued at the end of 2017 and beginning of 2018, and the final number of benefitted farmers will be apparent after post loan crop-cycles conclude. For example, 3,699 farmers are expected to be financed during S2Y17, with an additional 3,708 planned in S1Y18 and over 5,000 in S2Y18. These projections are based on partner commitments as mentioned above, on a more aggressive portfolio, on intervention business plans, and a move towards institutional strengthening that will affect a wider number of crops.

However optimistic the above projected outreach, SAFIRA has identified a few risks to mitigate among its interventions in order to achieve projections. For example, in maize NTB with BISI, the team will have to ensure that BISI follows through on its commitment to provide GAP to farmers when receiving financing, otherwise farmers may not always increase their income despite increased productivity and access to finance. The collaboration with PRISMA should mitigate this risk, as PRISMA will support BISI to provide a guideline on GAP, and support farmers who receive YARO credit and link them with a feed miller to ensure sales and loan repayment. In the coffee sector, the effects of La Nina threatened the harvest and outreach may be smaller than expected at the end of 2017, and weather will continue to play a role in 2018. However, this intervention provides institutional strengthening to Bank NTT and is expected to impact crops other than coffee.

TABLE 3: SAFIRA KEY PERFORMANCE INDICATORS

	KPI tracking	Actual cumulative Y17S1	Actual Y17S1
1	# Outreach (all farm HHs)	189	189
1b	# Outreach (<$2.50 PPP)	134	134
2	Net Income Impact in IDR (all farm HHs)	984,269,829	984,269,829
2b	Net Income Impact in IDR (<$2.50 PPP)	699,069,840	699,069,840
3	# SMEs with increased turnover[9]	3	-0
4	Increased Turnover SMEs in IDR[10]	4,787,776,848	3,884,561,508
5	# Innovations/Interventions	7	3
6	# Initiatives by Government to improve BEE	-	-
7	# Intervention Partners (public & private sectors)[11]	7	5
8	Private Partner co-investment in IDR	704,212,980	704,212,980

[9] The actual number of SMEs that achieve an increase in their sales/revenue due to our intervention(s).
[10] The actual turnover / sales / revenue of the products / services, not the cash amount of the loan. SMEs / ISPs include any intermediary between the financial institution and the farmer.
[11] In SAFIRA, this indicator includes Financial Institutions / Financial Service Providers (e.g. Banks, Cooperatives, etc.), as well as service providers like agro input producers

With measured outreach for the first time, SAFIRA has been able to have a first look at net attributable income change (NAIC) per farmer HH, at IDR 984,269,829 (AUD 98,427) this semester and IDR 5,207,777 (AUD 521) NAIC per farmer, increasing income by 60%. As SAFIRA has increased awareness of VCF products to over 2,500 farmers, we expect demand to be further stimulated and the first signs that we are able to increase incomes above the 30% target is encouraging.

With multiple SAFIRA partners now committed to collaborating in our portfolio, private sector investment is recorded at IDR 704,212,980 (AUD 70,421). The bulk of these commitments are from 2 banks and 1 agribusiness; Bank Sinarmas for VCF across their institution, Bank BRI in goats EJ and BISI for the maize NTB YARO credit scheme. Bank Andara and Credit Union Sawiran in potatoes EJ also made smaller commitments, and SAFIRA now has a portfolio of partner commitment from large banks, smaller credit unions and an agribusiness. In the pipeline, SAFIRA expects further commitment another large agribusiness, EWINDO, and will likely add various types of institutions and businesses in 2018.

TABLE 4: SAFIRA PROJECT SPECIFIC INDICATORS

	SAFIRA specific indicators	Actual Y17S1
1	# HH who have received finance based on our intervention(s) (directly and indirectly)	283
2	# farm HHs who have repaid the loans (speaking to NPL ratio)	Too early to report
3	# Number of SME's or ISP's that receive finance and on-lend	Too early to report
4	# of financial institutions that increase agricultural lending by a significant amount	2

The above SAFIRA-specific indicators were recently returned to the DFAT measurement protocol to line up with AIP-Rural program and project KPI tracking. The protocol was revised before the submission of this PRIP. SAFIRA-specific indicators were reduced from 6 to 4, as there were areas of duplicated efforts and similar program and project KPI definitions. Information from the previous protocol has not been discarded, but rather redefined in a context more appropriate to VCF and avoiding repetition. The new measurement protocol will be reflected in the MIS system the next semester.

SAFIRA's two partners, Bank Sinarmas and Bank NTB, have financed 283 farm HHs to date, but it is too early to report the number of farm HHs that have repaid loans and the number of SMEs that receive finance from our partners. These KPIs are likely to become clearer during the next reporting period when loans are paid and SMEs included in the business models this coming semester show evidence of benefitting.

SAFIRA value for money indicators will be analysed next semester, once the project has achieved at least 2 semesters of outreach and the indicators are comparable. However, investment leverage with partners after the first semester of results is at 21% when comparing direct intervention costs and 7% when including total intervention costs (with indirect costs such as travel and salaries). These figures are comparable to PRISMA's current investment leverage (see section 2.2), which is a positive sign for a project at an early stage.

3.3 Portfolio analysis and strategy

The previous SAFIRA PRIP developed a clear strategy for the project to prioritise the institutionalisation of value chain finance among various actors in the market. The three main approaches to achieve this are:

1. Institutional strengthening of financial institutions in terms of core business practices and systems.
2. Developing the VCF consulting and support services market through institutional strengthening of consulting firms and other actors.
3. Knowledge sharing among stakeholders.

The above approaches are non-sector specific, and while SAFIRA currently has sector specific interventions in its portfolio, these are expected to move towards non-sector specific through institutional strengthening, as partners broaden their interest in VCF and see the evidence of its

viability. For example, the coffee NTT intervention began as a sector specific idea, but the partner, Bank NTT, now sees the value of diversifying into other commodities with VCF products. Developing the consulting and support services market and knowledge sharing will begin to materialise during the second semester of 2017, once the training manual and toolkit is developed to support this strategy, as outlined in the Management Response section below.

The 7 interventions in the SAFIRA portfolio represent a diversified set of partners, including 5 banks, 1 credit union and 1 agribusiness – BISI, and expects to add EWINDO as another agribusiness in the next semester. Around 4 of these interventions target institutional strengthening, while it is still possible that the other more sector-specific interventions might naturally move in this direction as well. While not included as a formal intervention, SAFIRA provided Syngenta with a study on rice in East Java, which is expected to aid Syngenta entering a new market area.

SAFIRA adopted a similar approach as PRISMA's QMT, and this semester has identified 2 current interventions to push (institutional strengthening with Bank NTT and maize NTB-BISI), 2 current let flow (beef EJ-Bank Sinarmas, potatoes EJ), 2 interventions under observation (goats EJ and maize NTB-Bank Andara), and 1 intervention to improve (maize NTB-Bank NTB). The interventions under observation/to improve will revisit the business model and partner commitments to ensure that we can achieve significant outreach.

The SAFIRA strategy is already improving partner buy-in among financial institutions, and the development of the support services market and knowledge sharing is expected to increase partner diversity. Partnerships with PRISMA, TIRTA and ARISA have proven to be instrumental to faster-achieved partner buy-in, as SAFIRA can leverage the existing relationships and trust already built by other AIP-Rural personnel.

3.4 Challenges and lessons learned

One of the key challenges impeding the advancement of the VCF market is the gap between the available information on developing VCF capabilities and products, and institutions implementing VCF products in the market. A guide to VCF in the Indonesian context is particularly lacking. Worldwide, VCF is not a defined process or single instrument, but rather a holistic and context specific approach that involves linking all actors along the value chain, especially linking businesses and SMEs involved in agriculture with financial institutions.

In Indonesia, SAFIRA aims to codify the agricultural value chain finance process within the local context, which will result in a training toolkit to strengthen supporting market actors and for these actors to deliver training to financial institutions. SAFIRA faced challenges in finding the right partner to deliver this, but could not find and market actors willing to invest. Ultimately, SAFIRA developed a revised solution to develop the materials with an individual consultant, which will then be released to a network of consulting companies as a product they can charge for upon its delivery.

Related to the above, SAFIRA has built relationships with financial institutions, and it has work to do to fully include SMEs in our partnership models. We expect to work with more SMEs as financial institutions increase their understanding of VCF, and improve their institutional capacity and the support system surrounding these institutions. The SAFIRA team has also worked to better define and understand SMEs that are actually linked to our partners. As result of this and our increased efforts to explore these connections, approximately 80 SMEs have been targeted in business models developed with current and potential interventions. To further this effort, a new staff member was recruited largely based on the candidate's experience of working with SMEs in Indonesia receiving and providing loans.

In all interventions, the team has laid a strong foundation to achieve our KPIs in the future, through financing sensitisation and informing farmers about loans available, and restructuring partner arrangements according to the strategy defined in the last PRIP. This semester, SAFIRA developed and agreed on a MoU template that follows our ISD targets, which provides a clearer understanding of the level of commitment we expect from partners. Four of these more targeted MoUs are expected to be signed this semester, while two were already signed with BISI and Bank NTT.

As mentioned in the policy section, the GOI issued Kartu Tani and changes in the scheme are expected to have a positive impact on SAFIRA and its banking partners. In the initial scheme, the Kartu Tani was used as a means to disburse subsidized inputs for farmers, such as fertiliser. Currently, Kartu Tani is managed by Bank BNI, and the card works like a debit card, where farmers pay through a savings account that also holds Kartu Tani funds. Using Kartu Tani as a debit card, farmers can buy subsidised fertilizer/inputs from authorized retailers using a mobile EDC (Electronic Data Capture) machine distributed by the bank. This type of transaction is also applicable for loan transactions and off-taking transactions. This scheme will help the GOI initiative for branchless banking and cashless transactions. If SAFIRA partners issue loans through this scheme, it will reduce the administrative and process time for banks to loan, and increase SAFIRA's outreach.

3.5 Management response

SAFIRA has already identified a consultant to develop and deliver VCF training, providing a detailed training manual and toolkit to support the development of VCF in Indonesia. The training manual will be developed and assessed in consultation with SAFIRA so that the appropriate level of information and support can be determined to embed the framework into an organisation and ensure it is grounded in practical reality. Not all areas of the manual will apply to all organisations, and training will be tailored to the type of organisation and the level of management trained. The manual will have 7 main topics, but the final set of topics will be dependent on the consultant's assessment:

1. Understanding agriculture: scope & prioritise sectors
2. Identify & engage value chain actors
3. VCF products and assess current products that may be adapted to agriculture
4. Broker partnerships with value chain actors
5. Marketing, training, launch, coordination strategies for VCF
6. Loan monitoring, activity monitoring (of value chain actors)
7. Repeating the process in additional sectors and/or with additional commodities.

Under the direction of the SAFIRA Team Leader, the consultant is expected to develop and deliver the training modules, as outlined above, to at least 2 local financial institutions in Indonesia by the end of 2017. The training manual will synthesise existing frameworks for VCF into a format that would appeal to banks, and incorporate key lessons learned from previous SAFIRA training and published VCF manuals. The training materials should be generic so as to apply across various financial institutions and be immediately applicable to quickly implement. Concurrently, the consultant will deliver the training module by module, so that modules can be adjusted and revised as appropriate in order to reach a final product.

The first deliverable of two modules is expected in August and September. Once the training manual is complete, additional VCF consulting companies will be tasked with delivering the training to financial institutions and other stakeholders at the beginning of 2018, initially through our institutional strengthening agreements. SAFIRA expects that this will stimulate innovative financial products in 2018, increase the project's overall understanding with partners, and contribute to increasing their buy-in. By the end of the phase, the progress of innovative financial product development will be a key measure of sustainability, scale, and crowding-in; the rate of increase and repeat loan-to-farmer business for financial institutions will be an additional measure of sustainability and product innovation.

Overall, during the next semester SAFIRA will focus on scaling up activities with the current and joining staff members by continuing collaboration with other AIP-Rural projects, especially PRISMA, by building the training manual toolkit, and by empowering VCF consulting firms and financial institutions. The finance industry is already beginning to see the opportunities for VCF and the rationale behind it, and SAFIRA is confident that our additional staff capacity and institutional strengthening and knowledge sharing strategy will spark additional partner uptake and benefit farming households.

4 Cross cutting issues

4.1 Results measurement

Monitoring and Results Measurement (MRM) and the Results Measurement Manual have been integrated for all AIP-Rural programs. The MIS Power BI, QMT and ISD tools are functional and the program is now using this system for data aggregation. The coordination between the Results Measurement and Learning (RML) and MIS teams resulted in minimal fixes to the system and reliable data during this semester's results aggregation. This has saved staff and management time, and we expect the process will be even more efficient as we move forward.

During the first semester of 2017, the RML team greatly increased its capacity to measure impact, completing 18 intervention impact assessments[12]. After developing a projection tool that analyses past variance, the program significantly narrowed its projection to actual variance (from -21% to +0.5%) this semester, and will continue to use the tool to monitor and improve on projection variances. These assessments captured early signs of systemic change through indirect impact, particularly in maize EJ, pigs NTT, shallots NTB and soybean EJ.

The RML team provided an initial PRISMA project-level analysis for the Proof of Concept across sectors, subsectors and interventions of aggregated data to compare VfM indicators, other KPI indicators, gender disaggregated numbers. This analysis will not only help the Phase 2 design team but also AIP-Rural management better compare across portfolios and sectors, and identify areas that need improvement in the strategy by intervention or sector moving forward.

To better understand the effectiveness of converting farm households to beneficiaries, RML developed a tool to measure access-to-use-to-benefit conversion ratios. The most accurate conversion ratio calculation is based on interventions with impact assessments only, setting all interventions at the same impact assessment cycle. So far, PRISMA has 4 assessment cycles, with the highest number of data points in Cycle 1 and 2. The number of data points in Cycle 3 and 4 is still very low. It is therefore still too early to draw any definite conclusions, but a first analysis of the results indicates that it is not very likely that the results will be conclusive. A report analysing conversion ratios will be finalised in August.

Supporting RML's increased capacity to measure impact, the team selected 3 new staff in March, completing their induction process in May, and current staff have participated in several capacity building training sessions. RML staff participated in training sessions to further strengthen their skills in measuring impact, such as completing DCED training in January along with DFAT and BAPPENAS and technical training in the statistical program STATA.

Preparation for the August DCED Pre-Audit for SAFIRA, TIRTA and ARISA is in progress to meet DCED control points in terms of the availability and quality of the documentation. In March, a roadmap was developed by RML staff from each project with the support of PRISMA, and a DCED consultant will deliver the pre-audit.

In the next semester, RML will complete up to 28 impact assessments, focusing on indirect impact from farmers copying, businesses crowding in, applying partner products to non-target crops, and impact in other provinces. The program level analysis developed for the Proof of Concept will be further refined on the advice of the SRP in September.

Additional systemic change indicators focussing on partners' institutional development will be formulated early in the semester and applied to all impact assessments. The indicators will use the current AAER system and will provide the teams with more guidance as to what to strive for and what to observe.

[12] Impact assessments were carried out in the following sub-sectors: beef EJ, NTB and NTT, mango EJ and NTB, cashew NTT, shallot EJ and NTB, soybean EJ and NTB, pigs NTT, peanut NTT, and maize EJ and NTT.

4.2 Gender and social inclusion

AIP-Rural finalised the Gender Inclusion Strategy[13] for PRISMA, SAFIRA and TIRTA in April 2017, and the program now has a unified conceptual and strategic plan for gender inclusion in agricultural market systems. The strategy was developed taking into account of the overall program strategy, the DFAT Gender Equality and Women's Economic Empowerment (WEE) Strategy, the program's own experience and other literature on gender mainstreaming in agricultural and financial programs. This strategy will be further socialised with all staff and the new Cohort 5 during the next semester through our strategic consultant Linda Jones.

The Deal Making Guidelines were updated recently to provide guidelines during partner negotiations as to how to more effectively build WEE into business models. This includes highlighting the business case and commercial viability of including women, using evidence to support the benefits of thinking about women in the business model, and actively showcasing our interventions where women play a central role in the market. The goal is to make the commercial benefits of working with women clear to partners and thus incentivise them to actively invest in women in their businesses, be this as their supply chain partners, consumers of their products, as staff members, and other key functions.

AIP-Rural has a well formed strategic level approach to gender and assessment tools, but over the next semester the program aims to develop an approach on a practical level moving beyond gender mainstreaming to providing the tools for teams to identify and build business cases to incentivise partners. A consultant will join in the next semester to strengthen the program's deal making and results measurement at the implementation level to identify current opportunities, and strengthen WEE design, pitching, negotiations, and results measurement strategies to further improve the initial business case and ultimate impact on women. The role of the consultant will be less of a strategic reviewer and more of a capacity builder, working closely alongside teams to look at factors such as what evidence to select to convince partners, how to approach deal-making incorporating WEE effectively, and how to measure WEE leanly and effectively at critical points in the partnership's life-cycle.

Disability empowerment training will be held in the upcoming semester for the program. This training will provide the team with the foundations of understanding disability concepts and principles, and also with knowledge of the current situation and context of disability inclusion in markets for development, so to enable teams with the opportunity to take forward disability inclusive practices in AIP Rural. This activity will also involve select AIP-Rural co-facilitators.

In Flores, PRISMA is now working with two disability institutions. One is a Disabled People's Organisations (DPO) active in the pig sector, which has been helping us identify specific individuals, households and other social groups afflicted with on disability and assess their willingness and suitability in becoming actors in the pig value chain. The other organisation is a vocational education school targeting people with disabilities, which has included vegetable farming in its curriculum.

We have started to assess the impact we currently have on people with disabilities. This falls in line with our plan to better understand the topic and to finally develop a strategy. During the second semester, we will intensify the quantitative and qualitative measurement.

At a project level, this semester PRISMA has a 42% female farmer participation rate, with 6 sub-sectors over 50%[14] and 7 above 40%[15]. PRISMA teams are using this information and women's involvement along the agriculture decision making process to commit partners to inclusive and women focused business models. For example, peanuts NTT has the highest rate of female farmer participation, at 73%, and women's farmer groups (PKK) in the region are highly active. The partner[16] agreed with the team after PRISMA convinced them that targeting women would lead to more effective seed sales, and the partner also sees the effectiveness

[13] AIP Rural Gender Inclusion Strategy consist of gender inclusion goals, key elements of the strategy, roles and responsibilities of the team members, integration of gender & women's economic empowerment into result measurement and learning, and the further steps.
[14] Over 50% sub-sectors include peanut NTT, coconut EJ, coffee NTT, maize EJ and maize NTT.
[15] Over 40% sub-sectors include soybean NTB, cassava EJ, cashew NTB, cashew EJ, pigs NTT, seaweed NTT and beef NTT.
[16] CV. Dirgajaya Teknik (DJT), Intervention: Promoting the Use of Good Quality Peanut Seeds through PKK Group

of having PKK group leaders as ISPs and GAP information agents. Even at the intervention design level, such as in mung bean EJ, the team found that around 97% of seeds purchases, harvesting, and post-harvest processing activities are done by female farmers, and our nursery partner[17] agreed to target female farmers exclusively, and target female cooperative leaders and farmer group leaders as ISPs.

Dupont recently hired 8 frontline maize field agents, of which 3 are women, the first time the company has hired women for this role in Madura. To address security issues facing the female field agents, they are assigned to well-connected areas and mostly to female farmer groups. The women have also been given uniforms that easily identify them and their role to avoid questions from the community

PRISMA and SAFIRA both collaborated with BISI to conduct a specific female farmers event for the YARO seed credit scheme in maize NTB, which made BISI aware of the difference in the reception level between male and female farmers. Female farmers are more attentive to the teaching materials and are seen as more reliable as a seed credit agent, and BISI has agreed a similar event would be conducted regularly and recruit woman as BISI agents. In NTB, SAFIRA also held assessments on the impact of Bank NTB financing (Kredit Usaha Rakyat) on women, understanding barriers for women accessing loans and discussion women's expectations and loan disbursement preferences. As a result, BISI has changed their approach to gender, and has actively requested including women in business models when exploring other sub-sectors to work in, such as during discussions with the soybean team to collaborate in Lombok.

4.3 Environment

During the first semester of 2017, PRISMA conducted environment assessments for 8 interventions in 7 subsectors to identify the level of risk an intervention has on the environment as well as the exposure level of environment and climatic risk facing an intervention. A total of 50 environmental assessments across 32 subsectors out of 89 interventions have been completed by PRISMA.

SAFIRA conducted environmental assessments on 2 of their 7 interventions using extrapolation from PRISMA sister interventions, as many SAFIRA interventions are an expansion or additional support to PRISMA interventions. All assessments followed the program's Environmental Management System (EMS) that rates each intervention for low, moderate, or high risk based on the two parameters stated above.

To date, 18 PRISMA interventions and 1 SAFIRA intervention have been identified as posing a moderate risk to the environment, while 35 PRISMA interventions and 1 SAFIRA intervention are moderately exposed to risks from environmental conditions. None of PRISMA and SAFIRA current interventions have been rated as having a high risk for negative impact on the environment, as the program would in most cases not approve such interventions. However, 1 PRISMA intervention was found to be highly exposed to negative climactic risks. A follow up assessment with the respective portfolio team clarified that the intervention is prepared and mitigating this risk.

The La Niña phenomenon and a locust outbreak in Sumba, NTT were the major environmental risks facing the program this semester. There were several occurrences of crop failure due to continued high rainfall, strong winds and floods in certain provinces. While the impact of these events was isolated to specific areas, it did affect the program's ability to deliver positive impact in several sectors such as mango, soybean, and cashew, including EWINDO facing challenges in sourcing soybean seeds from Batan for commercial market production. The locust outbreak is hypothesised to be a population boom caused by the long drought during the El Niño period switching to extremely wet and humid conditions caused by La Niña. Another locust outbreak may be further in the future, but the program will continue to monitor and assess such risks in increased pest attacks from changing climate conditions, which could affect crop planting and harvest cycle, and crop protection inputs.

PRISMA engaged with the South-Pole Group (SPG), one of global leaders in sustainable environment solutions to pilot an environment impact assessment for PRISMA's coffee intervention in Flores, NTT during the second semester of 2017. The pilot will assess the intervention's impact on the environment, and

[17] CV. Semi, Intervention: Promoting Certified Mung Bean Seeds through Women Rural Networks

also explore positive and/or negative impact and opportunities within a sustainable supply chain, as well as green economic empowerment.

The pilot will also serve as a key foundation for the program's review and adjustment of the Environmental Management System (EMS). This will accommodate feedback on the EMS from the program's mid-term review, adding climate change elements in assessments, and ensure that environment awareness issues are more integrated and accessible to PRISMA and SAFIRA in developing and implementing their interventions.

4.4 Communications

In March 2017, a Communications Manager and a Communications Coordinator joined AIP-Rural. The new team has since started working on pending housekeeping items, including updating various document templates, developing new tools for program communications tracking, a photo and video library, revamping the website, and developing new baseline materials.

The unit has also developed a new communications product, Farmers of Indonesia, which is a series of short stories based on themes submitted monthly to the Australian Embassy's Public Affairs department and distributed through their official social media channels, namely Facebook. The first of edition of this series was released in June, under the theme "farmers and technology"'.

An overarching AIP-Rural Stakeholder Engagement Strategy is another communications initiative, which will be used as base guidance for communications and engagement efforts to AIP-Rural stakeholders. The output of this strategy will provide guidelines on levels of engagement to different types stakeholders and audiences, as well as provide indicators to measure the effectiveness of engagements.

The communications team supported AIP-Rural in several major events this past semester. Among many, the unit assisted Oxford Policy Management and DFAT in the SOFIA data launching event in Jakarta. Communications have also developed event support documents, including event checklists and visit guidelines.

I**n the next six months, the unit will revisit its Communications Strategy, based on the findings and conclusions from the Stakeholder Engagement Strategy**, aiming to maximise reaching out to the right audience with the appropriate level of effort to gain optimal results. New communications tools focusing on different program and project audiences will complement this strategy, including new project and program profiles, provincial profiles, commodity/intervention factsheets and a partners' deck. Another communications initiative is the development of audio/visual materials in the form of video and stories which can be used by AIP-Rural when communicating with external stakeholders.

SAFIRA's communications strategy has been entirely integrated into the wider AIP-Rural strategy. The communications unit now supports all AIP-Rural program and TIRTA, SAFIRA and PRISMA project communications.

4.5 Risk management

AIP-Rural combined risk management for all projects which are discussed quarterly during the CMT meetings. Risks were categorised as overall program risks to AIP-Rural, and project specific risks to SAFIRA, TIRTA and PRISMA. The AIP-Rural program risks have not changed and include child protection, fraud risks, environmental risks and security.

PRISMA identified emerging risks to the projects activities in livestock and staple crops such as maize and soybean. In livestock, animal health may pose a risk as disease outbreaks like pig cholera have been recorded, and the very dry conditions recorded this semester in NTT pose a risk to livestock fodder. To mitigate these risks, PRISMA is partnering with animal health companies to bundle feed and animal health awareness and medicine, and will work with feed companies to increase concentrate feed production during periods of dry weather when fodder is low.

Subsidies may have a marked impact on the maize and soybean interventions, and tree crop subsidies are planned for next year which may affect coconut, mango and cacao. PRISMA continues to try to coordinate with local government and private sector partners, and will be implementing a study on the impact of subsidies on these markets and opportunities (see section 2.5).

SAFIRA de-escalated a number of risks this semester due to human resources settling in to their roles and changing priorities, and identified emerging risks mainly in the value chain finance ecosystem. Intensified partner engagement has reduced the risk of partners' incorrect perception of the project and finding consultants for loan product development is less of an issue. However, emerging risks for SAFIRA include an insufficient number of national consultants to support a larger VCF framework within the financial ecosystem and regulatory environment, and SMEs/partners cautious as to whether VCF is the right solution when Dana Desa funds are available. SAFIRA expects that the training protocol and engagement with other consulting companies to deliver the training will build their capacity to provide the broader support needed to SMEs and partners. SAFIRA will also develop a unified strategy with PRISMA to approach Dana Desa funds and work with them productively.

5 Stakeholder relationship management

5.1 Government of Indonesia national and sub-national agencies

Phase 3 of the M4P training for local governments concluded in April 2017 with 43 participants from 16 local governments, and phase 4 is ongoing until October 2017. After phase 3, several intervention opportunities have already been identified with local governments in EJ, NTT, NTB, WP and Papua, with activities identified in maize, mango, vegetables, cocoa, beef, chili and nutmeg sectors. Phase 4 will focus on systemic change and simple results measurement. In this phase, the local governments will share their experience in designing interventions and deal making with the private sector.

PRISMA is now considering avenues of integrating project objectives with the government proposed interventions, such as in areas of intensification, replication or expansion of a current intervention in a similar sector, and providing assistance to governments to implement interventions in totally new sectors. PRISMA developed a scoring method for 15 government intervention ideas, considering aspects such as the potential link with a PRISMA intervention, potential outreach, government capacity and level of commitment to implement, and potential private partner capacity and commitment. A chilli intervention has already started with the local governments in Sampang and Pamekasan, Madura.

PRISMA is currently exploring opportunities to increase outreach and improve village ownership of business opportunities by working with Dana Desa, a fund from the Central Government to rural villages, with spending at each village's discretion. We are also exploring work with existing village business councils (BUMDes) and link them to our private sector partners. PRISMA is developing pilots linking our current interventions in several sectors such as cashew and coffee in NTT and coconut EJ for tree replanting and rejuvenation through the Dana Desa fund. Another pilot will be conducted through BUMDes in the maize sector seed intervention in NTT. There is also an opportunity to work with the DFAT funded KOMPAK BUMDes program in Pacitan and Trenggalek to promote replanting and intercropping in both districts.

SOFIA, a SAFIRA led financial access survey, concluded this semester and the findings were presented at a launch event to government partners, various financial services providers and development partners supporting the promotion of financial inclusion in Indonesia. The study provides profiles of potential consumers of financial services, and these profiles are meant to provide financial service providers with information that they can use as they develop new products or services. Next semester, the SOFIA dataset is expected to produce a number of VCF thought pieces, and trainings on the dataset will be provided to the GOI Financial Inclusion Working Group and for all AIP-Rural staff.

5.2 Private sector and civil society partners

Key strategic partners are emerging across PRISMA and SAFIRA sectors and team, and improved coordination of engaging with these partners will strengthen our strategic relationship. These partners include Novelvar, Syngenta, EWINDO and Rainbow. Any meetings or events with these key partners are now discussed during CMT meetings, in order to improve the flow of information and ensure a consistent standard of engagement between sector teams.

The Deal Making Guidelines were updated to reflect learning from the AIP-Rural implementation experience, sharpen the role of gender in deal making and aim to negotiate and develop more systemic partnerships. The final revised guidelines will be available in July, and will be socialised within teams through training lead by the general manager of AIP-Rural.

The lessons taken from the review of the co-facilitators undertaken during this semester were presented to the core management team. The findings showed that we need to review the way we work with co-facilitators to ensure maximum impact. These findings will influence the way we contract NGOs going forward to utilize their skills and areas of strength. This will mean PRISMA senior staff will ensure greater oversight of co-facilitator interventions and direct the sector analyses. Many co-facilitator contracts ended in 2016, and PRISMA will only continue with those most successful.

AIP-Rural decided to reduce working with PISAgro on a strategic level, but will continue to engage with the organization's sector working groups. After discussions with the PISAgro management and board, both parties recognised that PISAgro still lacks resources and the capacity to implement AIP-Rural's strategic recommendations. AIP-Rural will continue to work with PIGAgro in the corn, soybean, horticulture and agricultural finance working groups to maintain engagement, and we will revisit collaboration at a strategic level once the organisation is ready.

6 Operations and finance

6.1 Operations

In accordance with the recommendations made by the MTR, the operations team transitioned to an integrated 'One Operations' model. This required adjustment to the Operations team structure, with TIRTA operations staff transitioning away from a TIRTA only focus and taking on broader support.

All programs are now following the same processes and the re-structure has achieved the improved efficiencies envisaged. Following the Operations team retreat, staff developed and signed a Code of Core Values that has seen a continued improvement in team coordination and communication as they adjust to their new roles. MIS was separated from Operations and now reports to the Deputy General Manager.

Operations support to the new SAFIRA team continues to be strong and the team has been provided with on-the-job training to learn existing processes. Minor modifications have been made to some templates to reflect some of the unique differences of SAFIRA. Support is provided across finance and budgeting, travel, procurement, partnership agreements, consultant contracting and human resource requirements.

6.2 Personnel management

Following the recruitment of Cohort 4 in Oct 2016, planning for Cohort 5 started in March/April with assessments and interviews undertaken in July. New staff (14 BC and 6 SBC) will join the program in September and complete a detailed month-long induction program consisting of both classroom and on-the-job training.

Capacity of staff is critical to program success, and AIP-Rural is currently developing an improved staff induction program and a Human Resources Management Strategy. A rapid assessment of staff

capacity was undertaken during this semester as the basis for the development of the next induction program. This assessment is also being used to inform the revision of the capacity development strategy, which will be aligned with the Human Resource Management Strategy. Both these strategies are currently being reviewed and will be finalised during the next reporting period.

Following two unsuccessful recruitments for a local Head of Operations and Finance, the program has determined a new strategy to find a local person to support the Head of Operations and Finance and build the capacity of this individual over the remaining period of Phase 1. The new strategy includes a targeted approach to find nationals in competitive sectors such as construction and telecommunications in the belief that these industries foster the skills and knowledge essential for this role. The program intends to engage two head hunting agencies and has sent a proposal to DFAT. It is hoped that the successful applicant will join the program around October/November.

A number of workshops were undertaken this period to develop an HRM Strategy. The strategy focusses on aligning HRM strategic objectives with the Organisational Strategy. Time was also taken to better align personnel management and human resource development under the same strategy. Previously these two disciplines were implemented through separate units: personnel management through HR and personnel development through RML. Bringing together these two disciplines will enable a stronger focus on talent management and closer alignment between HRD and appraisal management.

6.3 IT and MIS

The MIS system is now fully functional with 25 tools already available, which will be socialised with staff during the next semester. Important tools to socialise are the Power BI dashboard and document library, and eventually SharePoint pages for teams to better organise tasks and data real time for knowledge transfer among staff.

Annex 1 – Sub Sector Profiles

SAFIRA

1. BEEF EJ – BANK SINARMAS

Indonesia is the largest beef producer in Southeast Asia. Nevertheless, the country is experiencing a shortfall in production as domestic consumption outstrips supply. At the same time, national demand cannot depend on imports. Since 2010, the government has been tightening import quotas with the aim of creating 90% self-sufficiency in beef. These two factors together have significantly increased the demand for locally sourced beef. PRISMA's research indicates that increasing the availability of feed and artificial insemination services will enable cattle farmers to meet local export standards and increase their volume of cattle production.

East Java is Indonesia's biggest cattle producing province. According to BPS 2015 data, East Java accounted for 19% of national beef production and 28% of national beef cattle population. It is also the largest exporter of live cattle between provinces. Local consumption is a significant driver of East Java's cattle and beef sector.

The number of poor people in East Java is slightly higher than the national average. Most farmers in East Java raise cattle as family asset and source of ready cash. They do not see cattle rearing as a business or livelihood, and do not make conscious decision to participate in national cattle and beef production.

Cattle productivity in East Java is low, particularly during the dry season (May to November). This is caused by (a) lack of supplementary feedstock, and (b) limited awareness of the benefit of supplementary feeding. Farmers' reliance on native grass to feed their cattle results in a fattening period of 11 to 12 months. The fattening period is halved on a feedlot, where the use of concentrate or supplementary feed will reduce the fattening period to only three to four months before slaughtering. The low cattle productivity is also due to poor breeding practices where natural mating results in poor genetics of calves and lower conception rate, and the provision of artificial insemination services has not been effective.

Challenges and constraints

Lead farmers have applied PRISMA's cattle fattening intervention but lack the finance to increase the number of cattle. Meanwhile, other farmers who are interested to apply better fattening practice do not have sufficient fund to apply it. Some of the farmers may purchase better feed but do not necessarily supply themselves with enough feed or purchase feed but feed them to low quality young cattle.

Limited capacity of feedlots which play the roles of cattle suppliers and off-takers in target area (Tuban). The business model for cattle fattening loan requires involvement of feedlots which supply farmers with better quality calves to farmers. Existing feedlots only have limited number of calves to be supplied to farmers. Thus, despite the willingness of partner financial institution to meet the target number of farmers to be financed, the partner is restrained by feedlots' capacity to supply calves to farmers.

Vision of change

SAFIRA's vision of change is that, by 2018, the recipient cattle farmers can access credit to purchase better calves, increase use of better inputs and improve the market prices for the fattened cattle, as a result of which smallholder farmers increase their incomes.

The SAFIRA approach

To achieve this vision, SAFIRA has partnered with Bank Sinarmas and will collaborate with the private sector, as follows:

- Bank Sinarmas and SAFIRA develop a loan product for cattle fattening in Tuban. The loan is provided 'in-kind', in the form of quality calves and feed.
- **To deliver such a loan product, Bank Sinarmas collaborates with other value chain actors.** SAFIRA facilitated the collaboration between Bank Sinarmas and feedlots and feed producers.

Specifically, SAFIRA supports the Bank to:

- Provide inputs to the loan product;
- Hire and build capacity of VCF Focal Points whose role are to promote the loan product, assist farmers in preparing loan application, and monitor cattle growth and health;
- Re-engineer loan sales and cattle monitoring tools;

The Business Model and Partners

Collaboration occurs with three private partners (PT Dua Berlian, PKM Holcim, and UD Wahyu Utama). Their roles in regard to expanding finance to farmers will be:

- PT Dua Berlian Mandiri
  - Provide calves to farmers and purchase fattened cattle
  - Deduct loan amount from proceeds before paying the farmers.
- PKM Holcim
  - Provide a list of farmers recommended for the loan
  - Provide concentrate feed and inputs to farmers
- UD Pangestune Utama
  - Provide a list of farmers recommended for the loan.
  - Provide calves and supplementary feed to farmers and purchase fattened cattle
  - Deduct loan amount from proceeds before paying the farmers.

Progress and signs of systemic change

Bank Sinarmas has adopted the financing model that SAFIRA offered. It financed 56 farmers by June 2017. The number is relatively small but Bank Sinarmas demonstrated their intention to finance more farmers in S1Y17 as long as intermediary service providers were prepared to supply cattle to farmers. Furthermore, Bank Sinarmas informed SAFIRA that it will continue to finance cattle farmers in Tuban in S2Y18

Bank Sinarmas has adapted agricultural VCF in other subsectors. To date, Bank Sinarmas has signed agreement with three companies and has been in negotiations with nine other companies to finance farmers. The majority of these on-going initiatives target cattle farmers in Java. Other initiatives target vegetable farmers and fresh water fish farmers.

The agreements that Bank Sinarmas has signed with three companies could potentially increase the number of farmers who access information on loan product and farmers who receive loans. SAFIRA will develop a monitoring plan to check the progress of these collaborations and track potential access and use.

2. GOATS EJ - BRI

The goat population in Indonesia increases at a rate of 4.6% per year. The total population of goats was around 17.4 million in 2011 involving 3.5 million household farmers (Indonesian Livestock Statistic, 2011), consisting of multiple breeds. The highest goat population is in three provinces three provinces: Central Java, East Java, and West Java. Of the total goat population, around 3 million are reared for milk production. Farmers usually keep the animals for both milk and meat, while for breeding purposes, very few raise goats for milk.

In the past few years, a new enterprise in goat farming has been growing in Indonesia, namely boer goat farming. Boer goat origin is from South Africa, and because of its quick growth, this breed is the best for meat production. 35-45 kg can be achieved by Boer goats at the age of only five to six months and they act as an alternative meat to beef. Boer goat enterprises are produced by breeding male boer goats (full blood) and female local goats.

In East Java, boer goat farming was initiated by Brawijaya University in Malang. The university expanded the farming to farmers in nearby districts. A number of small farmers run their own cross breed goat farms and

supply goats to small offtakers. Recently, interest in this enterprise is growing in the districts. Bank Rakyat Indonesia, a state owned bank, is interested in supporting the efforts to expand the enterprise further.

Challenges and constraints

- **Lack of supply of female goats**. To produce a large number of cross bred goats, a larger number of female goats is needed to be paired to male boer goats. Currently the supply of female goats in the market is limited. The population of goats in East Java is 3,178,197 (male and female goats) but the goats are largely owned by farm households who are reluctant to sell.
- **Lack of capacity among potential breeders**. The boer goats enterprise is relatively new in East Java. Some boer goats farmers who have reared pregnant crossbreed goats are interested in becoming breeders but they lack the skills on good breeding practices, capital to grow their enterprise, and business management skills.
- **Lack of knowledge and skills in good rearing practice among farmers**. Interest in boer goat farming among traditional farmers is growing but they do not have knowledge and skills in good rearing practice. Many farmers also maintain traditional view on goat farming, that goats are for savings, rather than commodities.
- **Lack of finance to access boer goats**. To achieve economies of scale, a farmer needs to rear at least 10 goats. The amount of money to rear 10 goats is significant, especially for smallholder farmers. Unfortunately, many of the farmers do not have the funds to run the enterprise. They do not have access to formal loans either.

Vision of change

- SAFIRA's vision of change is that, by 2018, goat farmers can access credit that facilitates access to cross-bred goats, better feed, and advice on rearing practices so that farmers can increase their productivity.

The SAFIRA approach

To achieve this vision, SAFIRA has partnered with Bank Rakyat Indonesia (BRI) to develop value chain finance, as follows:

- BRI and SAFIRA develop a loan product for potential breeders. The loan is provided in cash.
- **BRI and SAFIRA develop a loan product to farmers**. The loan is provided 'in-kind' in the form of 2 pregnant goats, 6 kid goats and improved goat-feed.
- **BRI collaborates with other value chain actors.** SAFIRA facilitates the collaboration between BRI, breeders, feed companies, and offtakers.

Specifically, SAFIRA supports the bank to:

- Provide market analysis
- Develop a business model for the value chain finance
- Develop BRI staff and farmer internal capacity on livestock management
- Support the establishment of demoplots through collaboration with breeders

Progress and signs of systemic change

In May 2017, BRI approved the business model that SAFIRA proposed. In June, BRI kicked off the loan program by promoting the loan product to 44 goat farmers in district of Blitar. Later in June, 30 farmers applied for the loan and 10 of these applications have been validated through Central Bank checking. It is expected that farmers will start to receive in-kind loans in July. BRI plans to promote the loan product in district of Kediri in the same month.

3. MAIZE NTB – BANK ANDARA, BANK NTB, PT BISI INTERNATIONAL TBK

Maize is one of Indonesia's primary food crops. According to USDA data, around 9 million MT[18] are grown each year in Indonesia on three to four million ha of farmland; more than half is used to cater to the ever-increasing demand for animal feed. It is a seasonal crop, with a surplus during peak harvest months and a severe undersupply the rest of the year.

At the national level the price of maize has been increasing steadily over recent years. However, the province of NTB has experienced no growth in its maize production, despite productivity being above the national average at 5.8 MT per ha. Most farmers there plant their crop during the wet season on dry farmland, with only a small number having the capacity to irrigate their land during the dry season. Poor post-harvest handling and lack of storage facilities add to the problem of inconsistent supply.

Around 127,000 ha of land in NTB is given over to maize farming, with approximately 87,700 maize farming households living below the poverty line. Just over half of these (43,900) are in Bima, Dompu, West Lombok and North Lombok.

Challenges and constraints

Analysis of the market reveals a number of problems that currently constrain the ability of NTB farmers to take advantage of this market opportunity:

- Limited provision of good agricultural practices and extension services because of weak public provision and lack of private alternatives. There are few reliable sources of information for maize farmers. Government extension services are not able to satisfy the need for technical information, and it is rare for input suppliers and traders to provide embedded information on maize cultivation. When input suppliers do provide information services, these are geared towards promoting their own products.
- Few commercial providers of fertilizer, post-harvest equipment, and irrigation services, particularly given the strong government presence in these areas. In addition to lower than optimal yields, farmers' production costs are high because they are producing hybrid maize, which requires more investment. Since farmers have limited access to affordable credit, many farmers will borrow from moneylenders and collectors at high interest rates. This increases farmers' production costs and reduces their margins. Finally, farmers also receive low prices because of poor post-harvest practices that affect the quality of maize. There are few commercial or government providers of quality post-harvest services.
- Limited affordable options for finance, particularly given the difficulties in accessing bank loans. The use of hybrid seed requires a sufficient supply of other inputs such as fertilizer, agro chemicals (e.g. herbicide, pesticide) and labour, as well as careful and informed treatment and maintenance. Poor farmers have little money to support these, and no access to external financial resources. Some farmers rely on moneylenders who provide loans at exorbitant rates of interest.

Vision of change

- SAFIRA's vision of change is that, by 2018, maize farmers in NTB, through inputs paid for with credit and embedded provision of good agricultural practices by partner, will have increased the volume and quality of their maize production, in ways which are sustainable and increase their income.

The SAFIRA approach

To achieve this vision, SAFIRA: 1) has partnered with Bank Andara, a private bank focusing on wholesale lending to rural banks in agriculture finance for many years. It has established a model for input financing for maize farmers through BPR Pesisir Akbar and Syngenta retailers in Bima and Dompu NTB in 2014. SAFIRA supported BPR Pesisir Akbar on Institutional Strengthening through MIS-based credit scoring and loan monitoring system development, 2) has collaborated with ARISA to facilitate its beneficiaries to receive loan from Bank NTB so that they were able to apply agricultural practices that ARISA introduced, 3) is working with

[18] The Ministry of Agriculture claim annual production of 20 million MTs against USDA data of 9million MTs. The reason for this discrepancy is that MoAg obtains a substantial portion of their budget based on high production figures.

PRISMA to support PT BISI International Tbk, an input company, to develop an input financing scheme for farmers through YARO financing scheme (50% upfront, 50% after harvest).

Progress and signs of systemic change

The credit scoring and loan monitoring system, SIMBUKA System has been installed in BPR Pesisir Akbar. However, the BPR has not used the output fully since it was only completed after the loan cycle started. As a result, the BPR can only use and review the new system in the next loan cycle i.e. by the end of 2017.

In spite of the missed opportunity in using the new system, the BPR financed around 750 farmers in this loan cycle. It is a 15% increase from last cycle, in which the number of borrowers was 643 farmers. This actual number, however, is lower than the target, i.e. 1,000 farmers.

Based on discussions between SAFIRA and Bank Andara on April 2017, SAFIRA will sign an MoU directly with BPR Pesisir Akbar in the 2nd semester of 2017 and SAFIRA will provide final training and technical assistance on SIMBUKA until November 2017. The training and technical assistance will support BPR Pesisir Akbar to use SIMBUKA system to fill credit applications from farmers before the planting season (before November 2017) to reduce processing times in filling the application and disbursement of the credit.

Besides loans from BPR Pesisir Akbar, maize farmers will receive information on GAP from Syngenta through the BPR Pesisir Akbar partner program Agri-fin implemented by Mercy Corps Indonesia.

Related to agriculture financing from Bank NTB to maize farmers, Bank NTB has financed 250 farmers in November 2016. Under the supervision of Universitas Mataram, farmers have applied better agricultural inputs and practices in December 2016. It is expected that farmers will harvest by the end of March 2017 and repay the loan in April or May 2017. Bank NTB is keen to expand the loan if the repayment rate is high. ARISA welcomes SAFIRA to support the design of loan product if the bank sends a positive signal.

In the YARO intervention, SAFIRA supports PT BISI International on bookkeeping, promotion tools and events, marketing methodology, and developed a new model including women and supported selection of female farmers acting as distribution agents of behalf of BISI.

Several activities related to YARO promotion were already conducted with a total of 2,191 maize farmers including events for female farmers, farmers meetings, farmer field days, and field visit events. In May 2017, SAFIRA supported BISI for capacity building to BISI's staff and to retailers, individual investors and farmers group. SAFIRA also trained on bookkeeping, promotion tools and marketing methodology, and provided the YARO financing module as a guideline for BISI's agronomist.

BISI plans to distribute maize hybrid seeds through YARO during the 2nd semester of 2017 to more than 2,500 maize farmers in Lombok Island. Also, in 2nd Semester 2017 SAFIRA will support BISI to conduct training for YARO female agents and expand YARO promotion to Sumbawa Island especially in Bima and support YARO financing in East Nusa Tenggara, particularly in the Malaka District.

4. POTATOES EJ – CREDIT UNION SAWIRAN

Indonesia is a minor producer of potato, with total production of around 1.4 million tonnes in 2014. This represents 0.26% of global production. The two major producers of potato in Asia are China and India with 88 and 42 million tonnes respectively. Australia and New Zealand have the highest yields (35 and 49 tonnes/ha respectively). India, China and Bangladesh are the main Asian exporters. Indonesian potato production and yields are, however, higher than Philippines, another largely tropical Asian country.

Nevertheless, potato is considered a more important vegetable in Indonesia due to its value and marketability and stability. The importance of potato is shown by a significant increase of potato production in a relatively short interval period. The production volume increase in 3 year period is nearly half a million tonnes, from under a million tonnes to 1.4 million tonnes in 2014. The volume is dominated by Granola, the variety for fresh consumption, which constitute around 85%. Granola ware potatoes are captured by small traders in local markets, whom later sell it to local markets. Another important variety but is produced in small volume is Atlantic, the one for food processing. Atlantic potatoes are produced through partnership between food manufactures and farmer groups in contract farming scheme.

East Java is in the top five of potato producing provinces in Indonesia. The production volume in East Java in 2008 is 105,000 tonnes, or more than 10% of national production. The main potato producing area is the Tengger area around the Mt. Bromo crater, which farmers cultivate Granola variety. This is divided administratively into four districts (Pasuruan, Probolinggo, Malang, Lumajang), which thus appear as the four main potato producing areas in the province (Table above). Other production areas are found around the slopes of other volcanoes (e.g. Bondowoso, Batu). Banyuwangi is a potential highland production area as yet little exploited. Batu is also the location of a thriving potato processing SME cluster, and some of the production areas in Malang district are located close to Batu, to serve that market.

Challenges and constraints

- **Low productivity due to the use of retained seeds**. Farmers in East Java understand that potato is highly responsive to inputs. They know that use of high quality seeds is the main factor to increase production. However, farmers are reluctant to use high quality seeds because they increase the most expensive production cost. Farmers prefer to use retained seeds from one season to another, and as a result, the production volume is low. Many farmers said that they produce 12-15 tonnes/ha, even significantly below the global production of 19.1 tonnes/ha.
- **Soil degradation due to overuse of pesticides and absence of crop rotation**. Similar to the constraint related to retained seeds, many farmers in Bromo area know that they suffer from soil degradation due to overused of pesticides and absence of crop rotation but sustain the same practices.
- **Price volatility**. Currently, the price of potatoes per kg is 8,000 IDR. In 2014, the lowest price per kg was 4,000 IDR. In 2016, the highest price was 12,000 IDR. The difference indicates that the price of potato is highly volatile.
- **Lack of finance to access high quality seeds**. There are farmers in East Java who are interested to use high quality seeds but lack finance to purchase seeds.

Vision of change

- SAFIRA's vision of change is that, by 2018, the farmers can access credit that facilitates access to high quality seeds, other inputs, and advise on agricultural practice so that farmers can increase their productivity.

The SAFIRA approach

To achieve this vision, SAFIRA has partnered with Credit Union Sawiran to develop value chain finance, as follows:

- **CU Sawiran and SAFIRA develop a loan product and supporting tools for potato farmers.** The loan is provided 'in-kind', in the form of high quality seeds, fertilizers, and agricultural advise.
- **CU Sawiran collaborates with other value chain actors.** SAFIRA facilitates the collaboration between the credit union, seed suppliers, and agri kiosks .

Specifically, SAFIRA supports the credit union to:

- Develop a business model for the value chain finance
- Develop their internal capacity on loan monitoring
- Support establishment of demo-plots through collaboration with a fertilizer company
- Provide inputs on the credit union's business plan for potato financing

The Business Model and Partners

- CU Sawiran
  - Process and approve loan
  - Manage and monitor loan repayment
- UD Tani Lestari and UD Tengger Permai

- Supply seeds to farmers

- Agri Kiosks
  - Supply fertilizers and other inputs to farmers

Progress and signs of systemic change

- SAFIRA and CU Sawiran have signed the Memorandum of Understanding for the collaboration
- CU Sawiran has adopted the proposed business model, in which loans are made to seed growers and ware potato farmers. The credit union has financed three seed growers in S1Y17 and plans to finance more seed growers as well as ware potato farmers in S2Y17.

The credit union is interested in developing further institutional capacity for value chain financing as an enabler to develop a loan product in other commodities. The credit union, however, aims to complete the first cycle of potato financing and see how it works before starting to finance farmers in other commodities.

PRISMA

1. BEEF EJ

Indonesia is the largest beef producer in Southeast Asia. Nevertheless, the country is experiencing a shortfall in production as domestic consumption outstrips supply. At the same time, national demand cannot depend on imports. Since 2010, the government has been tightening import quotas with the aim of creating 90% self-sufficiency in beef. These two factors together have significantly increased the demand for locally sourced beef. PRISMA's research indicates that increasing the availability of feed and artificial insemination services will enable cattle farmers to meet local export standards and increase their volume of cattle production.

East Java is Indonesia's biggest cattle producing province. According to BPS 2015 data, East Java accounted for 19% of national beef production and 28% of national beef cattle population. It is also the largest exporter of live cattle between provinces. Local consumption is also a significant driver of East Java's cattle and beef sector.

The number of people living in poverty in East Java is slightly higher than the national average. Most farmers in East Java raise cattle as a family asset and a source of ready cash. They do not see cattle rearing as a business or livelihood, and do not usually make conscious decisions to participate in national cattle and beef production.

Cattle productivity in East Java is low, particularly during the dry season (May to November). This is caused by (a) lack of supplementary feedstock, and (b) limited awareness of the benefit of supplementary feeding. Farmers' reliance on native grass to feed their cattle results in a fattening period of 11 to 12 months. The fattening period is halved on a feedlot, where the use of concentrate or supplementary feed will reduce the fattening period to only three to four months before slaughtering. Low cattle productivity is also due to poor breeding practices where natural mating results in poor genetics of calves and lower conception rate, and the provision of artificial insemination services has not been effective.

PRISMA has chosen to work with cattle farmers in East Java because there is potential to achieve change on a large scale. There is a clear market opportunity to expand East Java's potential to supply local beef demand in the province and to fulfil national beef demand through increased inter-regional exports.

Challenges and constraints

There are two main reasons for the low income of East Java's cattle farmers:

- **Inability to increase production**. Inefficient artificial insemination (AI) practices are a result of farmers having a) a lack of information on proper AI practices and b) a lack of access to timely AI services; and
- **Low productivity.** Slow weight gain in calves and cattle is due to farmers lacking awareness of and access to quality and quantity of feed and proper feed practices that are needed to accelerate cattle weight gain.

Vision of change

PRISMA's vision of change is that by 2018, East Java cattle farmers have increased their productivity and volume of production and obtain higher market value of their livestock. This attracts more farmers to go into cattle production, increasing domestic production and ultimately achieving import substitution. Progress can be made towards this by:

- **Cattle feed companies** providing affordable, nutritious feed and making sure it is commercially available, appropriate and affordable; and
- **Breeding companies** promoting professional AI services and providing embedded services to cattle farmers on good AI practices.

The PRISMA approach

To achieve this vision, PRISMA will collaborate with the private sector and support it to:

- In partnership with the feed companies, promote commercially available, appropriate and affordable feed and GRPs for cattle fattening to boost cattle weight gain and raise awareness among farmers of the benefits of investing in cattle feed products.
- Promote professional AI services, which should include information about good AI practices. The aim is to increase the supply of good quality calves through achieving higher AI success rate.
- Promote appropriate financial products for cattle fattening**.** The aim is to provide farmers, especially poor farmers, with the financial means to enter into the cattle fattening business. PRISMA will work with SAFIRA on this.
- In the first phase, PRISMA focuses on promoting the use of commercial feed as, with around 4 months of fattening period, this provides a quick win for the farmers. The area of focus for the interventions is the Tuban District, which has the second largest cattle population in East Java, and its proximity to Surabaya, the second largest city in Indonesia, makes Tuban a very strategic cattle producer.

Progress and signs of systemic change

Contracts have been signed with three private sector partners: (1) Wahyu Utama (to promote supplementary feedstuffs for cattle fattening), (2) PKM/Holcim (to promote concentrate feed for cattle fattening), (3) Nutrifeed (to promote concentrate feed for cattle). A fourth partner is in pipeline with Japfa Comfeed (the second largest feed player in Indonesian feed industries). A draft MOU has been sent to Japfa and is currently being reviewed by the company's legal team with a signing expected in August.

Wahyu Utama

- Positive results from the 1st year contract with Wahyu Utama, can be described below;
  - Training for lead farmers has taken place, and the lead farmers became the contract farmers of Wahyu Utama. Wahyu Utama has more contract farmers and more supply of cattle for its cattle trading business.
  - Wahyu Utama started to invest in concentrate feed production whilst previously concentrate feed was produced mainly for internal use.
  - Wahyu Utama obtained the right to operate a new government slaughterhouse, which would also support its upstream to downstream cattle business. Wahyu Utama received this right to operate partly because of its role in promoting cattle rearing among farmers, which also got its Director an award from the President of the Republic of Indonesia for his role in food security development in 2015.
- Since June 2016, the contract with Wahyu Utama has entered the 2nd year where there will be further trainings and demplots to improve the promotion of supplementary feed.
- To support the feed business, Wahyu Utama has recruited additional employees to manage the raw material supply, production and marketing. More employees will be recruited following the development

of the feed business. This implies better plans from the company to focus on a sustainable feed business.

- Following the result of the impact assessment from the 1st year, several modifications in activities will also be made to strengthen the promotional strategy to increase the ratio from access to users and/or to improve the number of beneficiaries.
- Despite the efforts to push more systemic changes, the focus of Wahyu Utama remains in the cattle business (instead of feed business). PRISMA considers this a limitation to reach bigger scale for promoting cattle feed to farmers. Therefore, PRISMA has decided not to continue the partnership with Wahyu Utama for the 3rd year. The contract with the company itself ended in June 2017. In general, Wahyu Utama thinks they see the results and benefit from the intervention and would like to continue disseminating the information on good rearing practice to the farmers in the future. The company will utilise the learnings from the intervention (and from PRISMA) to further develop their business and their networks.

PKM with the assistance of Holcim

- Results from the 1st year of intervention can be described below:
  - Sales of concentrate feed extended to areas beyond intervention area. Initially, the plan was to have retailers in the scale-up phase. However, the promising sales of the concentrates resulted in interest of retailers to sell PKM feed. There are now retailers of PKM feed in and outside of the intervention area.
  - Positive market response to the promotion of concentrate feed has motivated PKM to source additional raw materials to keep up the continuity of feed production. PKM has also procured a new hammer mill to increase feed production.
- Contract with PKM has also entered the 2nd year where additional districts have been included i.e. Lamongan and Bojonegoro, followed with further trainings to support the promotion of concentrate feed. Several modifications in promotion strategy has also been introduced to help improve the ratio from access to users and/or to increase the number of beneficiaries.
- PKM and Holcim are moving from a CSR program to a more commercial business. Gradually Holcim has given more responsibility to PKM to manage the feed business independently.
- In terms of promotional strategy, PKM has also taken up PRISMA's suggestion to conduct market storm activities to increase their sales. Although there are some limitations in the implementation, PKM will continue to adopt this push marketing strategy in the future and PRISMA will continue to support them to make more effective marketing and promotional strategies.
- PRISMA also encourage PKM to promote animal welfare aspects throughout their marketing and promotional activities such as in demo events and promotional tools. This includes feed and nutrition, animal health, tethering and space, social and herd aspects.
- Bank Sinarmas with the assistance of SAFIRA has created a new financial product for cattle farmers with Wahyu Utama and PKM. This financial product will allow cattle farmers to obtain loans to purchase cattle and feed. 39 farmers have obtained the loan from Sinarmas and at least 4 have done the repayment.

Nutrifeed

- A new agreement between PRISMA and Nutrifeed has been signed to promote concentrate feed in East Java. This should expand the intervention to better feed for cattle across other districts in East Java. The implementation activities started in October 2016 and have been including demo events, SMS blast, market storms in several participating districts such as Probolinggo, Lumajang, Jember, Magetan, Madiun, Ngawi and Bojonegoro.

- Like other partners, PRISMA also encouraged Nutrifeed to promote animal welfare aspects throughout their marketing and promotional activities such as in demo events and promotional tools. This includes feed and nutrition, animal health, tethering and space, social and herd aspects.
- Following PRISMA's suggestion, Nutrifeed adopted a marketing strategy, particularly the market storm activity. Combining this with other marketing and promotional activities, the company has reached 4% of sales growth up to May 2017. PRISMA will continue to support Nutrifeed in strengthening their distribution channels and make more market storms in more locations to boost feed sales of the company.

Japfa Comfeed

- A draft MOU has been sent to Japfa and is currently being reviewed by the company's legal team with a signing expected in August.
- Japfa agreed to partner with PRISMA to promote concentrate feed for cattle fattening in East Java, NTB and NTT. The first trial of the partnership will be in East Java with a potential to expand to NTT and NTB.

Contribution of private and publicly funded programs

UPSUS SIWAB program. The Ministry of Agriculture has allocated Rp. 1.1 trillion (US$82.47 million) of its budget to increase the country's livestock population through a special Artificial Insemination and Natural Mating, which breeders will get finance and technical assistance to improve livestock reproduction.

2. BEEF NTB[19]

Indonesia is the second largest beef producer in Southeast Asia after Myanmar. Nevertheless, there is a shortfall in production and at the same time, national demand exceeds imports. Since 2010, the government has been tightening import quotas with the aim of creating 90 percent self-sufficiency in beef and improve the live cattle price nationally. These factors together have significantly increased the demand for locally sourced beef. However, in mid-2016, the government lifted the import quota for beef and live cattle, but imposed a requirement for importers to import one breeding cattle for every five feeder cattle. Also, in September 2016 the government imported cheap buffalo meat from India, which put pressure to the price of local beef. The import of beef and live cattle remain to be a contentious political issue, but national policy is to increase beef and cattle productivity in Indonesia to reduce beef prices.

NTB plays an important role in beef production, by providing live cattle and supplying breeder animals for other provinces. The province plays a major role in national cattle development and in meeting national beef demand. Demand for NTB cattle and beef is rapidly increasing in DKI Jakarta, West Java, Kalimantan, Sumatera, Maluku, and Papua regions. There are, however, some inconsistencies in the available statistics and it is very hard to comprehend whether NTB's cattle and beef sector is responding to increasing demand by producing more in the years when production and export decreased.

NTB has the potential to produce an additional two million heads of cattle, which would drive future poverty reduction in the province. It is one of Indonesia's key cattle producing regions; the cattle grazing land can be expanded by more than 50% in 10 cities of Lombok and Sumbawa. The natural conditions in NTB are suitable not only for producing beef cattle, but also cattle for other purposes, especially the purification of the Bali cow and other varieties for rearing in other districts. There are thus several ways that NTB can become a major supplier of beef and feedlot for the country as a whole and become a key inter-island exporter.

Two different cattle rearing techniques were observed in NTB, with a spatial pattern to each. Farmers in the Sumbawa area raise cattle following the ranch system – an extensive farming practice relying on pastures and open water sources. In Lombok on the other hand, an enclosed system is the most common; here, cattle rearing practices are intense. The enclosed system is more investment intensive and allows greater control over breeder selection, feed management and disease control.

[19] Interventions in this subsector are being co-managed by LP2DER (Lembaga Pengembangan Partisipasi Demokrasi dan Ekonomi Rakyat) (as PRISMA's co-facilitator).

PRISMA has chosen to work with cattle farmers in NTB because of (1) the potential to achieve change on a large scale, and (2) the province will be able to fill the national demand gap currently being supplied by imports.

Challenges and constraints

The main reason for the low income of NTB's cattle farmers is the low weight of their cattle, which results in it fetching a low price. There are two main reasons for the low cattle weight in NTB:

- **Limited availability of good quality calves, particularly among ranch beef cattle in Sumbawa Island**. For cattle reared in a ranch, calves are of low quality, largely as a result of inbreeding due to the farmer's limited knowledge of animal and breeding management. Even in an enclosed system, production of calves has not been optimal because farmers have (a) inadequate knowledge of the proper timing of artificial insemination (AI) and (b) limited access to effective and quality AI service.
- **Poor nutritional intake for the cattle.** Good quality fodder is lacking during the dry season, as farmers depend on natural production and do not have knowledge of quality fodder production or understand the need for fodder cultivation. There is a lack of water resources for cattle due to poor water infrastructure. In addition, there is low use of supplementary feed because farmers are unaware of its benefits. They do not know how to produce nutritious feed, and ready-to-use feed is unavailable.

Vision of change

PRISMA's vision of change is that by 2018, NTB's cattle farmers have improved the quality of their cattle (in terms of weight) in both the ranch and enclosed systems, which leads to increase of production and productivity of cattle. Ranch cattle farmers have improved access to better ranch management services (including ranch breeding); enclosed system cattle farmers have better access and services to good quality AI, and the information and knowledge needed to produce, source and apply feed. This attracts more farmers to go into cattle production, increasing domestic production and ultimately achieving import substitution. Progress can be made towards this by:

- **Public extension service providers** and breeding **companies / bull owners** supporting the development of improved ranch management services;
- **Feed companies** promoting commercial nutritious feed application and production; and
- **Breeding inputs** companies supporting the government capacity to solve the bottleneck for efficient service delivery of AI (e.g. nitrogen supply).

The PRISMA approach

To achieve this vision, PRISMA will collaborate with the private sector and support it to:

- Support the development of improved ranch management services by public extension service providers and bull owners.
- Support the feed companies to promote the application and production of commercial feed application.
- Support government capacity to solve bottlenecks in efficient AI service delivery (e.g. nitrogen supply).

In the first phase, PRISMA focuses on promoting the use of commercial feed as, with around 4 months of fattening period, a quick win for the farmers. The focus of the intervention is in Lombok Island because with its enclosed system, it provides the best environment for the success of the intervention with commercial feed.

Progress status and signs of systemic change

- A contract has been signed with private sector company PT Bintang Pribumi Tulen (PT BPT) in early 2016.
- During the partnership period with PT BPT, the company has developed the feed composition formula to produce concentrate feed, purchased machineries, recruited employees to produce concentrate feed. Despite the sales progress in the first months, PT BPT has stopped production of concentrate feed commercially since December 2016. It was then mainly producing feed for the cattle owned by its

own cooperative, Koperasi Sejahtera. The company also focused on government projects and other business ventures.

- Considering the unclear commitment, goals and progress of PT BPT's feed business, the Mid-term Review team suggested to drop the partnership with PT BPT as it was no longer an active producer. Hence, the contract with PT BPT was officially ended in February 2017.
- PRISMA then has been focusing on working with UD Imama, originally a paddy miller and fish feed producer, to produce concentrate feed. The agreement with UD Imama was signed in August 2016 and PRISMA has since been supporting the company to promote concentrate feed to cattle farmers in NTB.
- UD. Imama has set up demo plots in Central Lombok and West Lombok to promote concentrate feed among farmers. Demo plots were set up in collective pens and mainly with farmers who are cattle traders and potential distributors. UD Imama has also taken up PRISMA's suggestion to adopt marketing and distribution strategy, through development of promotional tools such as banners, brochures, development of channel distribution through retailers/distributors, and implementation of new promotional activities such as market storms in livestock market and traditional market through their retailers/distributors. Despite the challenges in raw materials availability and the partner's capacity in managing commercial business in larger scale, production of UD Imama has been increasing for the past 6 months. In addition, PRISMA also encouraged UD Imama to promote animal welfare aspects throughout their marketing and promotional activities such as in demo events and promotional tools. This includes feed and nutrition, animal health, tethering and space, social and herd aspects.
- UD Imama sustainability is currently in question. Considering the limitation of UD Imama in terms of financial and human capacities, PRISMA is exploring partnerships with other local feed companies, such as UD Sinar Rejeki, to promote commercial feed in Lombok and Bima. Although no formal partnership has been formed yet, UD Sinar Rejeki has procured machineries, trucks, raw materials to produce commercial feed for cattle. PRISMA will support UD Sinar Rejeki in a marketing and distribution strategy. In addition, Prisma is also approaching Japfa to enter the NTB market.

Contributions of private and publicly funded programs

Several programs have been established by local government (e.g. Ministry of Research and Technology) and other donors to train farmers to produce their own cattle feed. The NTB provincial government has two programs related to cattle: (1) Bumi Sejuta Sapi, which is a provincial program since 2008 for the provision of calves and support systems (e.g. pens, feed including forage such as lamtoro and elephant grass seeds), and (2) Pijar, which is a provincial program for districts that are producers of cows, corn, and seaweed. The Lombok District government has programs on provision of calves, provision of cattle for fattening, and capacity building for farmers (i.e. training on cattle breeding).

3. BEEF NTT

Indonesia is the second largest beef producer in Southeast Asia after Myanmar. Nevertheless, there is a shortfall in production and at the same time, national demand exceeds imports. Since 2010, the government has been tightening import quotas with the aim of creating 90 percent self-sufficiency in beef and improve the live cattle price nationally. These factors together have significantly increased the demand for locally sourced beef. However, in mid-2016, the government lifted the import quota for beef and live cattle, but imposed a requirement for importers to import one breeding cattle for every five feeder cattle. Also, in September 2016 the government imported cheap buffalo meat from India, which put pressure to the price of local beef. The import of beef and live cattle remain to be a contentious political issue, but national policy is to increase beef and cattle productivity in Indonesia to reduce beef prices.

PRISMA's research indicates that increasing the availability of affordable cattle fattening products and breeding services in the province, while at the same time providing access to financial products appropriate for men and women cattle farmers, will lead to an increased volume of cattle and beef being produced that is suitable for inter-regional export.

East Nusa Tenggara (Nusa Tenggara Timur, or NTT) has one of the largest numbers of beef cattle in Indonesia and exports a high volume of live cattle to other islands in the archipelago. At the same time, around 20 percent of the population is poor, almost twice the national average. Of its one and quarter million farmers, 16 percent are cattle farmers and are poor or near poor, typically raising livestock as a source of family income and selling their cattle before they reach their optimum weight.

Challenges and constraints

The major reasons for the low income of NTT's cattle farmers are:

- **Inability to increase production of calves because of long inter-calving intervals and high rates of calf mortality.** These are due to farmers lacking access to feed, water, and good rearing practices to reduce mortality among calves; low awareness of the benefits of quality feed and water; and minimal access to services and information on proper breeding (including on the management and selection of prime bulls and female breeders)
- **Low productivity because of slow weight gain in cattle.** These are due low farmer access to nutritious feed, water, and good practices to accelerate weight gain and farmers having low awareness of the benefits of appropriate quantity and quality feed and water for cattle productivity.

Vision of Change

PRISMA's vision of change is that by 2018, beef cattle farmers in NTT will have increased production and productivity. At the service level, it is envisaged that farmers will have improved access to: (1) feed, (2) water, (3) breeding information and prime bull rental services, and (4) information services. This can be achieved by:

- **Cattle feed companies** introducing affordable nutritious feed for calves and cattle. This can partly be achieved by establishing linkage with fattening companies and feed companies.
- **Breeding companies** introducing prime bull rental and breeding information services.
- Water or irrigation companies, fattening companies and local government promoting sustainable water services for cattle farming.

The PRISMA approach

To achieve this vision, PRISMA will collaborate with the private sector and support it to:

- **Introduce affordable nutritious feed for calves and cattle.** The goal is to ensure the availability of feed, especially in the dry season, for both calves and cattle. Proper feed is of prime importance for securing better economic returns from cattle farming. It can reduce mortality in calves while shortening the fattening period for cattle. This intervention area will involve (1) developing nutritious feed formulas with locally available raw materials (or through the production of new raw materials) that can be available year-round, or (2) developing technologies to conserve feed for dry season feeding. This may include support to identify and produce better feed combinations and to increase awareness among farmers of the benefits of more nutritious feed formulas.
- **Promote sustainable water services for cattle farming.** The goal here is to improve access to water for cattle farming and ensure sufficient water intake by cattle and calves. This will influence the growth of calves and cattle and reduce cattle mortality.
- **Introduce prime bull rental, artificial insemination, and breeding information services.** The goal is to improve calf production through access to better breeding inputs and information on proper breeding practices (including management and selection of prime bulls and female breeders). This will increase the calf population via two channels: (1) increasing the number of births of better quality calves, and (2) reducing post-natal mortality.

Progress and signs of systemic change

- Prisma and PUSKUD (*Pusat Koperasi Unit Desa* or Union of Village-Level Cooperatives), a PRISMA partner for cattle sector development in NTT, has completed a feed trial on the use of good quality fodder Leucena *(Lamtoro)* in cattle fattening. This trial concluded that Lamtoro is the key premium

forage available year-round to achieve optimum average daily gain of cattle. This trial has triggered PUSKUD to develop the feed strategy of its contract farming business and enter the Lamtoro fodder business supporting cattle farming in Kupang District, TTS and TTU in Timor.

- PRISMA and PUSKUD has worked on a joint intervention plan to promote the use of Lamtoro as premium green forage for smallholder farmers engaged in cattle fattening. This intervention has been approved and a contract agreement signed. The cost of this intervention to PRISMA is currently around AUD 177,000.
- PUSKUD has started the cultivation of Lamtoro Tarramba seedlings and so far, has sold around 15,000 seedlings to smallholder farmers working with the company under its contract farming business partnership, and to the farmers of the Anggur Merah program (a block grant program under NTT's provincial government).
- In January 2016, DFAT representatives visited PUSKUD to discuss the condition of NTT's beef sector, including market growth, opportunities, challenges and how, through PRISMA, DFAT can support PUSKUD in cattle business development to reach out to smallholder farmers.
- Smallholder farmers have started nine demo plots cultivating Lamtoro Tarramba. Three (belonging to the Anggur Merah project) have been started by smallholder farmers and around 15,000 seedlings have been planted. These demo plots will promote the commercial benefits of Lamtoro use for fattening cattle to smallholder farmers.
- In October 2016, provincial government representatives working on the Anggur Merah project invited a member of PUSKUD to be a source speaker at two workshops in Kupang and Kefa, where PUSKUD shared the result of its feed trial with PRISMA and the joint intervention plan. A local Kupang newspaper included a feature on PUSKUD's use of Lamtoro Tarramba in cattle fattening.
- ARISA's Project Director visited PUSKUD to learn about implementation of the joint intervention plan with PUSKUD on the use of Lamtoro in cattle fattening.
- The Director of PUSKUD made an Australia Award-funded exchange visit to the University of Queensland, Australia (March to May 2016). As a result, he is increasingly confident in the use of Lamtoro for fattening cattle and is committed to the intervention.
- On 2 December 2016, a roundtable discussion and dinner on "The Beef and Cattle Industry in NTT: Its Opportunities and Challenges" was held and the participants included cattle traders in NTT, Bappeda NTT, Department of Livestock NTT and Department of Livestock Kupang. One of the main challenges discussed was that cattle farmers and traders lack feed and water during the dry season that impede cattle growth. This is a challenge that is being addressed by PRISMA's intervention by introducing Lamtoro for cattle fattening.
- PRISMA facilitated PUSKUD to work with farmers assisted by BPTP (*Balai Pengkajian Teknologi Pertanian* / Agricultural Technology Assessment Agency). These farmers will be members of PUSKUD and suppliers of Lamtoro seeds to PUSKUD's nurseries.
- PRISMA facilitated PUSKUD and Anggur Merah to work together in supplying and selling lamtoro seeds to members of Anggur Merah and to buy cattle fattened by farmers of Anggur Merah. The Anggur Merah groups are also potential members of PUSKUD that can receive feeder cattle for fattening under a profit-sharing system with PUSKUD.
- On 20 June 2017, PUSKUD and PRISMA conducted training to extension agents (PPL) of Livestock Dinas of Kupang and TTU Districts on Lamtoro Tarramba cultivation and the commercial benefits Lamtoro for cattle fattening. It is expected that thorough the PPL networks the information on Lamtora Tarramba will widely spread across NTT.
- To support for the attractive wider promotion of Lamtoro across NTT, the BPTP, PUSKUD and Prisma agreed to make tutorial video on Lamtoro cultivation. The video will be a gimmick to be attached on the Lamtoro seeds packing to attract buyers.

- Anggur Merah program requested PUSKUD to develop plans to promote Lamtoro through Anggur Merah networks and strengthen the capacities of Anggur Merah's cooperatives across NTT.
- A mentor visit feedback from Prisma in May concluded that PUSKUD has limited capacity and cannot support all farmers with extension services. Better feed and fodder will shorten rearing time, but farmers must wait for PUSKUD cattle rotation. While on the policy side, the export quota is a challenge and delays selling – exporting slaughtered cattle from Kupang is political and PUSKUD must wait for shipments and don't have space on ship; farmers are ready with cattle but PUSKUD cannot ship. The way forward: (1) the team should explore the export quota issue, (2) PUSKUD is not a strong partner and team is thinking of long term strategy. The team is developing a timeline when we will see benefit for projections. Only utilize existing demos with innovative marketing, explore political economy around quota system, speak with SAFIRA on PUSKUD financing/capacity issue. (3) find new partner for Kupang and Sumba (feed + pharmaceutical currently progressing), move to dried fodder then concentrate feed, use pig feed partners/networks to begin selling cattle feed in NTT.

Contribution of public programs

The local government project *Peningkatan Produktivitas Sapi* ('Increase of Cattle Productivity') provides Lamtoro seeds, chopper machines and concentrate feed. The program works in three villages in Kupang (Bone, Amarasi and Camplong). In addition, the provincial government provides financial program support in NTT via the Anggur Merah program. PUSKUD supplies and sells Lamtoro seedlings to smallholder farmers who receive assistance from Anggur Merah revolving fund. This is the latest collaboration with the Anggur Merah program, managed by the Anggur Merah Sector in PRISMA.

4. CASHEW NTB[20]

In 2014, world demand for cashew kernels (obtained from the raw cashew nut) was around 716,000 MT ; since 2008-09, this has been growing at an average rate of 7% every year. Demand for cashew is increasing 53% since 2010 and half proportion of Cashew production consumed in India and US. In addition, increasing demand in China and Europe create a significant jump in total export of cashew over a decade to 503,713 MT in 2014. Global production of Raw cashew nuts 3.7 MT where Nigeria are the biggest producers that contributed 24% of RCN total production followed by India, Ivory Coast, and Vietnam.

Indonesia currently contributes 3.5% to the global raw cashew nut market; in 2014 it produced 131,302MT. Although national earnings from cashew exports increased substantially between 2001 and 2013, from USD28 million to USD90 million, more than 80% of this was raw cashew with most value adding processes being carried out in India and Vietnam. Indonesia contributes 3 % of World total export for RCN and 1% for cashew kernel. Major market for Indonesia cashew kernel export are India, Vietnam, US, and Netherland.

Consumer awareness of healthy eating and concern for social issues in cashew-producing countries has fostered the growth of organic and fair trade cashew markets, which grew in Europe by around 14% between 2010 and 2011. The organic market has grown in single digit numbers in terms of volume, but at a higher level in terms of sales value. There are opportunities for key value chain actors to increase production to meet the rising demand for good quality cashew, both domestically and regionally, and internationally.

West Nusa Tenggara (Nusa Tenggara Barat, or NTB) contributes 11.29% to national cashew production; in the Bima and Dompu districts, approximately 23,745 farmers grow the crop. Their productivity, at an average of 252 kg/ha, is relatively low compared to the national average of 367 kg per ha. PRISMA has chosen to start the pilot in these two districts because (a) of the high potential for growth in the region, and (b) the farmers in Bima and Dompu have difficulty accessing pest control and GAP services.

Challenge and constraints

The major challenge to the cashew sector in NTB is that:

[20] The intervention in this subsector is being co-managed by Mercy Corps (as PRISMA's co-facilitator).

- **Farmers lack knowledge of GAP.** Farmers believed that without GAP implementation, they still gain benefit and not aware of potential benefit after doing GAP. The inattentive of service providers that could promote the benefit of doing GAP in cultivation. Meanwhile, Local service providers (LSPs) are not incentivised to engage with smallholders to supply information, technical assistance, services or value added processing, which leads to a reduction in GAP. This lack of provision is caused by the absence of information and commercial opportunities, resulting in limited demand for the products and services the LSPs provide.
- **Time constraint due to reutilization of cashew plantation.** Some of cashew plantation area in NTB are facing relocation function into more profitable or productive area such as sugarcane plantation
- **Farmers lack of awareness on GAP incentives.**

Vision of change

PRISMA's vision of change is that by 2018, farmers in NTB will have improved the productivity and quality of their crop, resulting in a higher market value of their cashew harvest. This will attract more farmers to grow cashew, increasing production for the export market. This vision can be achieved through:

- **Either state-owned enterprises or the private sector,** providing farmers with better access to information on and technical assistance to enable better farming practices.
- **Improve access through intermediaries' service providers (ISP).** The efficacy of information flow thorough ISPs proven to be effective in NTB. Limited ISPs for cashew NTB is still a challenge on cashew intervention.

The PRISMA approach

To achieve its vision, PRISMA will collaborate with the private sector to:

- Develop pest control and GAP services for cashew farmers in Bima and Dompu
- Re-establish the state-owned enterprise's agro business unit, to provide technical assistance and mentoring to service providers at their own cost. The private sector partner will also develop a partnership with producer/s of an organic pathogen company and become their main distributor in NTB.
- Promote the application of pest control and GAP to support cashew farmers obtaining higher yields.

Progress and signs of systemic change

PRISMA has finished a contract with PT GNE, a state-owned enterprise located in NTB, to facilitate the exposure of cashew farmers to good farming practices (GFP), and their access to improved inputs and information relating to pest control. With the project's support, GNE has stated its intention to expand its business by providing pest control and GFP-related information and supplies, and by building the capacity of six service providers in the region, who will supply cashew farmers with the its products along with embedded information on GFP.

A total of 23 demo plots have been established and more than a thousand farmers have received information on GAP and GNE's pest control products. Over a thousand farmers have applied elements of GAP (e.g. land cleaning, rafting, pruning and cutting); a few hundred have already purchased GNE's package of products and used it, and a few hundred more have placed advance orders and are on the purchase waiting list. Evidence suggests that a combination of GAP and the use of pest control product can more than double productivity.

A lack of liquidity on the part of ISPs (agents) resulted in late payment to GNE. As demand is high, it is important that the ISPs have sufficient access to capital and incentivise GNE to stock more of the product supplied by fertiliser input company, PT NASA. PRISMA is therefore facilitating a linkage between the financial institution BPR Pesisir and the partner/ISPs. Bank Pesisir is currently processing the documents submitted by the partner and the ISPs to assess their credit worthiness.

GNE has invited NASA to discuss the prospect of promoting the latter's product among six additional ISPs from northern areas of Lombok for various agricultural crops, including cashew. This indicates that GNE has ownership of the model and is autonomously engaging NASA to expand its business.

One key challenge has been the slow response time of GNE. PRISMA is researching an alternative model and partners to complement its current work, which may entail working directly with NASA. To this end the co-facilitator has moved out their office in the GNE complex and is discussing with NASA the possibility of direct promotion of its products in NTB.

After final review on this sector, PRISMA decided to phase out its current activities in this sub-sector, and is currently re-exploring other opportunities.

5. CASHEW NTT[21]

In 2014, global production of raw cashew nut (RCN) was 3.71 million MT, having grown from 0.29 million MT in 1961 at an annual growth rate (CAGR) of 4.13%. In the same year, Nigeria led production of RCN, with 24% of the global share; global annual demand for RCN was 1.5 million MT, with over 0.4 million MT of cashew kernel being traded in international markets. Demand for kernel is expected to continue to rise at an average rate of around 10% per year; and the USA is the largest importer of cashew kernel, followed by Netherlands and Germans. Vietnam has been the largest global kernel exporter since 2006, well ahead of India, the second largest. Vietnam and India are also the two largest importers of RCN.

In 2013, with 13% of the global cashew plantation area, Indonesia produced 3.5% of the world RCN. On average, more than 40% of RCN produced in Indonesia is exported directly to Vietnam and India; another 40% is processed into kernel for the domestic market, and the remaining 20% is processed into kernel and exported to the USA, Australia and other countries. Indonesia's cashew kernel export constitutes just over 1% of the world export market. The average export price of Indonesian RCN remains stable while the kernel price experienced an approximate three-fold increase between 2009 and 2013. Since 2009, production of RCN in Indonesia has been decreasing gradually – the cultivated area has declined from 572,870 ha in 2009 to 554,315 ha in 2013, while during the same period production decreased from 147 thousand MT to 108 thousand MT.

Despite this decline in the national yield, in NTT cashew production has remained relatively stable; the area under production has increased slightly over the years. The largest plantation and the highest production of cashew in Indonesia is in NTT. Around 99% of RCN produced in NTT is exported to other islands and countries, and the rest is processed locally to make kernel.

NTT is the third poorest province in Indonesia (20.24%) with a total population of around five million and 1.06 million households. Cashew is one of the province's major commodities. With comparatively sparse rainfall and a long dry season, NTT is one of Indonesia's most suitable cashew production zones. Around 273 thousand farming households, spread across all districts of NTT, produce RCN. There is potential for growing the subsector in NTT, through interventions which will introduce improved services and products for cashew farmers via input sellers, financial institutions, and cooperatives.

Challenges and constraints

Productivity of cashew in NTT is low and in decline. The two major reasons for this are pest and disease (mainly in Sumba) and the relatively old age of the trees (especially in Flores). The specific problems and their underlying causes are summarised below:

- Plantations typically use cashew trees that are almost 30 years old and thus less productive. Farmers do not have access to rejuvenation and grafting techniques, and seedlings.
- Lack of proper agriculture practices leading to infection by pests and disease. Little or no fertiliser or pesticide is applied, and pruning and sanitation are rarely carried out. The main underlying cause for this is that no one appears to have an interest in offering these information services.
- Farmers lack knowledge of better farming practices, are not business and financially literate, and cannot access market information.

[21] Interventions in this subsector are being co-managed by WVI (Wahana Visi Indonesia) (as PRISMA's co-facilitator).

- Cashew processing and value addition (kernel) is extremely limited. Only a few women farmers produce kernel with heavy support from the government with few market linkages.
- Farmers rely on the price set by the traders and have little bargaining power. Traders appear to offer a slightly higher price when cashews are aggregated but generally farmers sell their harvest individually. Farmers' associations and cooperatives do not provide aggregation services for cashew farmers. Another reason for the relatively lower price are the high costs of transportation
- Government extension services have little interest in cashew and insufficient knowledge about cashew production practices. With limited resources, they prioritise other major crops; an exception is the occasional free distribution of seedlings to cashew farms.
- Input suppliers and financial institutions (FI) do not target cashew farmers as their clients. They lack awareness of the market's potential and have limited capacity to expand their business in the cashew sub-sector in NTT.

Vision of change

PRISMA's vision of change is that by 2018, farmers in NTT will have increased their income from cashew by increasing a) the productivity of RCN, and b) kernel production. This vision can be achieved at the service level by farmers having:

- Improved access to quality inputs and tools to support GAP application;
- Improved access to GAP and information;
- Improved access to grafting services;
- Improved access to financial services;
- Improved access to kernel processing technology and services.

The PRISMA approach

To achieve this vision, PRISMA has designed five interventions. Central to its approach is the convincing of the relevant market actors to expand their business by targeting cashew farmers and promoting better inputs and practices among them:

Support the development of input supply services that provide embedded services (plant protection services, better farming practices) for cashew farmers in NTT.

- Educate input sellers on the value of extending services and products to cashew farmers and expanding their businesses.
- Advocate the use of better inputs and practices, in partnership with the input sellers, to the farmers.

Support the supply and promotion of grafting services that have embedded services (grafting technology, total plantation management) for cashew farmers in NTT.

- Commercialise grafting services (to produce seedlings).
- In partnership with the service providers, PRISMA will advocate the use of better quality seedlings and strengthen the demand through promotion of services.
- The project will also work on improving the quality of the seedlings and the marketing and distribution of the seedlings.

Support financial institutions and cooperatives to design and promote loan products with embedded services (business analysis and financial literacy) for cashew farmers in NTT.

- Along the lines of intervention 1, PRISMA will educate the financial service providers on the value of extending services and products to cashew farmers and expanding their businesses.
- The project will work to develop dedicated financial products tailored towards cashew farmers.

Assist traders, inter-island traders, national buyers and financial institutions in the development of local kernel processing units at the farm level in NTT.

- The intervention will commercialise and expand the existing production of kernel, specifically targeting women.
- It will work with buyers and financial institutions to build on the existing skills of the small groups of women involved in processing kernel and engage additional female farmers as their suppliers by providing appropriate support and skills.

Progress and signs of systemic change

PRISMA has started to implement intervention 1: 'Support the development of input supply services that provide embedded services (plant protection services, better farming practices) for cashew farmers in NTT'.

In the 1st intervention, PRISMA works with CV Peduli Kasih starting on 15th September 2015. Since then, Intermediate service providers (ISPs) that include government extension staff have promoted knowledge, inputs, and tools to cashew farmers in Southwest Sumba and East Sumba district. As of November 2016, they have provided access to around 2,500 farmers. In its implementation, PT Nufarm, as input supplier to the Partner, supports the demo plot and implementation of activities. Similarly, the Agriculture Office of Southwest Sumba and East Sumba released endorsement letters recommending pruning and space thinning to farmers through their extension staff. However, because CV Peduli Kasih has not properly performed their role in the intervention, the MoU with CV Peduli Kasih was not extended.

In the 2nd intervention, PRISMA works with an input producer, PT Novelvar (also known as Novelgro), starting on 19 May 2016. This intervention promotes quality organic inputs to cashew farmers in Sumba and Flores islands. Until today, about 32 ISPs have been involved in intervention and nearly 2,000 farmers got access to information and technology introduced in this intervention. In this intervention, PT Novelvar integrates provision of free samples and promotional materials to farmers. To support product application, they also support the promotion of a spraying tool branded as TASCO, which PT Novelvar is one of its distributors. In 2017, PT Novelvar also will begin their initiatives on expanding promotion to districts in Timor island. Hence, one ISP, Credit Union Pintu Air, adapted this intervention by appointing two existing staffs and hiring one more staff to fully manage promotion of technology and products.

Nevertheless, farmers and ISPs lack working capital to buy and sell inputs and services, which has become a major challenge encountered in intervention. On the demand side, the business model and technology/ practices introduced in the intervention are relatively new for farmers who never properly managed their cashew tree, thus demand of crop protection inputs and services for cashew is still low. In addition, the timeframe of intervention implementation (co-managed by WVI) does not match to the cashew crop cycle, and the WVI team has only one season to prove intervention success and provide outreach numbers. This intervention itself began in the middle of the chemical application season, and changing farmer behaviour towards maintaining cashew trees and applying new products is not an overnight task. Therefore, it will be challenging to expect a significant outreach only from cashew farmers. After an impact assessment in late February 2017, the two interventions recorded about 700 benefitted farmers and more outreach will come in the next report. Considering the potential of interventions in cashew sector, PRISMA extended the grant for WVI until August 2018 to expand the on-going intervention and explore a new intervention on GAP dissemination partnering with local government in some potential districts.

Contribution of public programs

The local government crops office, in southwestern Sumba, plans to improve the capacity of farmers in terms of pest control in the south west Sumba area in 2016. Officials in most districts have invited the project to work together with government to obtain as extensive coverage of the region as possible. The Government is already establishing a program in utilizing village finance (dana desa) and village-owned enterprise (Badan Usaha Milik Desa) by promoting GAP through government policy. It has significant impact of GAP application in cashew trees in several villages.

6. CASSAVA EJ[22]

With an annual production of 25 million metric tons (MT), Indonesia is the third largest producer of cassava and the fourth biggest exporter, according to the FAO. Indonesian cassava production increased by about 3.84% yearly from 2011 to 2015, and national and international demand for cassava is also increasing. World demand for cassava imports in the form of dried cassava, cassava starch and cassava chips is estimated at 220 million MT per year. Cassava is used for many purposes including human consumption, animal feed, and industrial starch. In terms of domestic consumption, national production is unable to meet the high demand. Opportunities exist therefore to increase production to meet domestic and global demand for cassava chips and to reduce imports of starch.

East Java is Indonesia's third largest cassava producer. Its domestic demand is also high, outstripping supply; the gap is currently being met with imported starch. In East Java, the largest production of cassava is in the districts of Trenggalek, Pacitan, Ponorogo and Malang, according to BPS data 2013. Many of the cassava farmers are from low-income households. In addition to growing cassava for staple food especially in dry season, there is a significant demand for cassava from local SMEs in East Java, particularly the cassava chip producers.

PRISMA has chosen to work in East Java because (a) growth potential here is high, (b) farmers in the region have difficulty accessing extension services and appropriate agro inputs, and (c) farmers in the districts find it difficult to access the commercial markets which supply the large-scale cassava industries.

The pilot phase of the interventions in Trenggalek district of East Java has concluded. PRISMA has started the scale-up to expand the area of the intervention from Trenggalek to cover 3 more districts, which are Pacitan, Ponorogo, and Malang, and also to involve nurseries to provide good cassava stems.

In 2016, Indonesia imported tapioca starch from Thailand. This results in the drop of cassava price in the last quarter of 2016. In some areas, the price of fresh cassava dropped as low as IDR 300 per kg, from previously IDR 1,500 per kg. The drop-in price resulted in farmers delaying harvest of cassava. Traders are also buying less fresh cassava as the cost of transportation can be higher than the value of cassava.

Challenges and constraints

The major challenges to the cassava sector in East Java and NTT are:

- **Low productivity**. Farmers have little knowledge of modern, appropriate and efficient farming techniques and practices, which results in cassava's low productivity compared to its potential. This is caused by (a) limited access to appropriate agro inputs, and (b) lack of access to extension services.
- **Substandard quality of cassava**. Inferior quality of input materials results directly in the substandard quality of the harvested crop. This is also caused by (a) limited access to appropriate agro inputs, and (b) lack of access to extension services.
- **Limited knowledge about the markets**. Farmers have little awareness of the potential economic value of cassava and this affects how they sell it, namely, in small quantities at the local market. The reason for this is the limited numbers of large or industrial-scale traders in the area.

Vision of change

PRISMA's vision of change is that by 2018, farmers in East Java and NTT will have improved their productivity, quality and consistent supply of cassava to meet the demands of processing companies. The market value of cassava will have increased, attracting more farmers to go into cassava production, which will increase national production to meet local and international demands. This vision can be achieved through:

- **Private sector partners/exporters** providing farmers with better access to extension services and appropriate agro-inputs; and

[22] The intervention in this subsector was co-managed by SNV (as PRISMA co-facilitator) until Jun'16. PRISMA has reviewed and evaluated the continuity of the intervention, and has decided to terminated the intervention.

- **Traders and businesses** providing better market access to farmers.

The PRISMA approach

To achieve this vision, PRISMA will collaborate with the private sector to:

Increase access to GAP and fertiliser provision

- Promote the sale and use of bio-fertiliser.
- The private sector partner will provide ToT training and information on GAP (specifically on business development) to distributors, who will then become key trainers of farmers.
- Develop a marketing and promotion strategy as well as activity plan to help ISPs educate, promote and sell fertiliser and provide extension services to the farmers.

Support access to better quality stems

- Nurseries to establish a partnership with distributors in order to distribute better quality cassava stems to farmers.
- Develop a promotion strategy (such as selling stems bundled with fertiliser) and activity plan to promote the use of better quality stems.
- Develop a model to provide knowledge and technical advice to farmers by ISP.

Progress and signs of systemic change

- PRISMA and SNV partnered with PT Natural Nusantara (PT NASA) in Trenggalek District to promote access to better quality input, which is fertiliser. Through its supply chain actors, it has provided GAP training to cassava farmers in the district, and has also started promoting its products for use with other crops in the area, such as maize and groundnut.
- PT NASA has established demo plots in the project location, as a result of which some farmers have started using NASA's products to implement GAP.
- A number of ISPs have started acting as agents for NASA's products.
- PT NASA sold the fertiliser through its network marketing channel, in addition to the distribution through agents as planned with PRISMA.
- Nurseries sold good quality cassava stems to farmers through ISPs.
- The harvest in Trenggalek was delayed due to the El Nino effect; however, sales of fertiliser have picked up.
- Pest attack resulted in poor cassava harvest among demo plots in Trenggalek. However, farmers that applied fertiliser and GAP properly reported higher yield than those that did not.
- Some farmers made repeat order for PT NASA's fertiliser.
- ISP linked farmers to output provider or processing companies (for starch and mocaf).
- In May 2016, the pilot in Trenggalek has ended. Based on impact assessment, farmers have increased productivity by 38% and income by 79%. Women participation in the intervention was around 20%.
- The results of the pilot phase in Trenggalek have led to a scale-up intervention covering 3 more districts (Pacitan, Ponorogo, Malang) and will involve nurseries to provide better quality stem in order to boost higher productivity for farmers. PRISMA has signed agreement with SNV for the scale-up in June 2016.
- In August 2016, SNV signed an agreement with PT NASA for the scale-up intervention.
- In September 2016, SNV conducted training to nurseries to promote production of better quality stems. A soya bean nursery in Trenggalek, which is an ISP of PRISMA's intervention in the soya bean sector, participated in the cassava nursery training. It has now produced cassava stems and is working with contract farmers in Trenggalek.

- PT NASA has produced training modules in the form of calendars. The training modules are distributed to participants of the training on Good Agricultural Practices (GAP) of cassava. Distributors of PT NASA have conducted trainings to farmers starting October 2016. However, field staff members of SNV resigned in October 2016 and this hampered the progress of GAP trainings.
- Due to the drop-in price of fresh cassava in the last quarter of 2016, farmers are postponing harvest and therefore planting of new cassava stems, affecting the sales of PT NASA to cassava farmers.
- Prisma has decided to close the cassava interventions due to the price drop.

Contribution to public programs

There is a government program by the Regional Planning and Development Agency (Bappeda) of Trenggalek to provide slicer machine for cassava chips in 2016. However, since the program relates to cassava processing, it does not affect the intervention on fertiliser.

7. COCOA PAPUA[23]

Global demand for cocoa is rising, and traditional cocoa-producing countries are trailing behind in their ability to meet this demand. Indonesia is the third largest cocoa-producing country and can benefit from this unmet demand. Cocoa has been one of main sources of income and employment for Indonesians; it is also the country's third major export earning product. In 2015, approximately 1.67 million households produced 0.67 million MTs of cocoa on around 1.66 million ha of land. A recent change in regulations created an immense opportunity for value addition locally; fourteen new cocoa processing companies have been established in the last five years, giving rise to demand for dry cocoa. South Sulawesi (70-80%) is Indonesia's major cocoa-producing region and here production has almost reached saturation point.

In Papua, cocoa is an important cash crop, with around 26,337 households involved in cocoa farming on approximately 32,491 ha of land. However, the province contributes to only 1.47% to total national production (Tree Crop Estate Statistics of Indonesia, 2015). Jayapura and Keerom are Papua's major cocoa producing districts, with 74% of the province's total cocoa farmers. Most of the cocoa farmers in Papua are subsistence farmers, and women are involved in almost all of the tasks in the production cycle. There is currently very little reinvestment in the commercialisation of cocoa farming to use fertiliser and quality seedlings; productivity is thus less than 200 kg per ha compared to the national average of 800-900 kg per ha. A few large local traders dominate the market. In the recent past Mondelez, in collaboration with Armajaro, introduced a 'cocoa doctor' concept where interested parties (collectors or others) were trained to provide technical services to farmers. This input was however temporary and currently none of the big processors have a direct involvement in Papua.

Challenges and constraints

The challenges that the cocoa farmers in Papua face are:

Low Productivity and Low Production. The underlying causes of this are:

- **Farmers do not apply Good Agricultural Practices.** Cocoa trees are starved of proper nutrients and frequently infested with pest and disease, caused mainly by inappropriate farm maintenance practices. Farmers tend to have little knowledge on how to grow cocoa better.
- **Cocoa plants are old, low density, and unproductive.** The average of age of cocoa trees in Papua are more than 10 years.
- **Input markets and information channel related to cultivation techniques** are largely dominated by public agencies; farmers' incentives are driven by subsidies.
- **Absence of strong traders and a direct procurement channel** of the large processing companies. This has further weakened incentives and ability to invest in more intense cocoa farming.

[23] Intervention with CV Kakao Kita and PT Bumi Makmur Subur Abadi in this subsector are being co-managed by YPPWP (Yayasan Pengembangan Prakarsa Wirausaha Papua) (as PRISMA's co-facilitator).

Low Selling Price. The underlying causes of this are:

- **Farmers prefer to sell cocoa wet beans than dry beans.** Many Farmers sold their cocoa in the form of fresh cocoa beans without drying (drying time varied between 2-3 days).
- **Farmers sell wet cocoa beans to collectors who can pay quick cash even with lower prices.** Farmers are constantly in need for quick cash, but the traders who are willing to pay higher price does not come frequently to the villages.

Vision of change

The vision of change at the sector level is to increase the income of Papuan cocoa farmers and fulfil market demand by increasing production and quality of the tree. At the service level, it is envisaged that farmers will have a) sustainable access to knowledge and information on appropriate farm management and cultivation practices; they can apply that knowledge by using good quality inputs (fertiliser, seed and seedlings) with sustainable access to those inputs and they also can apply side grafting to revitalize their cocoa farm; and farmers have, b) Functional access to suitable financial products, and c) sustainable access to market information on cocoa beans.

The PRISMA approach

To achieve this, PRISMA is considering collaborating with public and private sector partners to implement the following interventions:

Support revitalisation of the existing and development of new ISPs (in this case, the cocoa collectors at a village level) by cocoa traders to increase productivity of cocoa farmers through promoting Good Agricultural Practices and Side Grafting.

- Leverage the resources and actors currently available in Papua. PRISMA will partner with at least three cocoa traders in Papua interested in expanding their business and taking up the task of revitalizing the capacity of ISPs (in this case, cocoa collectors) in the local cocoa trade.

Promote fertiliser alongside information on better cultivation practices.

- Promote organic fertiliser and pesticide for farmers with less resources. Impact will be limited but it is better than that currently obtained by farmers using traditional practices. Those farmers who can afford the cost will be encouraged to apply the optimal level of fertiliser, which provides all the required nutrients.
- Fertiliser will be available through the regular input-distribution channels; farmers can buy it at agro input shops at sub-district level. To encourage farmers to use fertiliser, the intervention will establish a demonstration plot in each village to demonstrate good agriculture practices of cocoa farming that increase the productivity of cocoa.
- Support the development and implementation of integrated cocoa development centre by big processor/trader in Jayapura and Keerom.
- Support private businesses in partnership with a large processor or traders to set up seedling nurseries. The large processors will provide quality seedlings to the nursery owner and train them on the various aspects of cocoa farming.

Support the promotion of the use of good quality seedlings.

- The nursery owner is expected to provide knowledge and information to the farmers to enable demand creation. The cocoa the farmers produce will be bought by the large processors. This intervention, in conjunction with intervention 1, will somewhat enhance organised farming to provide market linkages and access to quality input and information.

Support the piloting of existing financing modalities into cocoa sectors in the district of Jayapura and Keerom

- The organization providing microcredit will train farmers in better cultivation techniques and provide market information, thereby aiming to reduce crop failure rates. This builds on the existing microfinance model of making collateral free credit available to cocoa farmers, and provides them with much needed credit and access to information.

Support financial institutions and provincial government to develop appropriate risk sharing and financing products targeting cocoa farmers

- Support financial institutions to develop more inclusive financial products targeting the cocoa farmers, by linking them with the government initiated credit guarantee fund. This fund shares partial risk of failure with the financial institutions, creating an incentive for the banks to reach a risky and excluded segment of the population

Facilitate modification of government seed certification process to include and promote locally suitable varieties among nursery owners.

- Link the local government laboratory in Besum, Jayapura regency, with the central laboratory in Jember, East Java, and create a protocol for testing seed varieties in Papua. This will allow the district laboratory to trial different seed varieties and identify which is most suitable for the local agro-climatic conditions. The laboratory will then multiply the identified variety and distribute it among farmers via private seedling companies.

Progress status and signs of systemic change

PRISMA has started to implement a version of intervention 1

- A Partnership Agreement was signed with PT Tanah Mas Celebes Indah (ECOM) in February 2017 and the main highlights and achievement since then are:
  - PRISMA and ECOM developed ISP identification and selection criteria
  - 37 ISPs village collectors have been identified and received information in GAP and Side Grafting/ Top Budding Techniques to revitalize the cocoa trees.
  - 3 Public Extension Services have joined GAP and Side Grafting/ Top Budding Techniques Training, so that in the future they can continue to provide information to farmers
  - 37 ISPs will establish demonstration plots in their area for promoting GAP and Side Grafting techniques for farmers in August 2017
  - 37 ISPs will build drying system equipment with support from ECOM for promoting high quality beans to farmers in August 2017
- An MoU was signed with partner CV Kakao Kita on November 18, 2015 and PT Bumi Subur Makmur Abadi on November 14th 2016. the main highlights and achievements since then are:
  - PRISMA developed ISP identification and selection criteria in collaboration with Partners
  - 27 ISPs have been identified and received information in GAP and Side Grafting/ Top Budding Techniques to revitalize the cocoa trees.
  - 27 ISPs have established demonstration plots in their area for promoting GAP and Side Grafting techniques to Farmers.
  - Demonstration Plot Competition Phase I which cooperate with local government is being conducted in 27 ISPs and will be assessed on January and February 2017
  - Demonstration Plot Competition Phase I which cooperate with local government has been conducted in March 2017, around 200 farmers joined this event and are interested to apply GAP and side grafting techniques in their farm.
- PT Bumi Subur Makmur Abadi has provided business capital to 10 ISPs/ collectors at a village level for buying wet beans and selling to PT Bumi Subur Makmur Abadi.

- PT Bumi Subur Makmur Abadi is in progress with assessing the cocoa institution that provides technical/ skills in Good Agricultural Practices and Side Grafting to PT Bumi Subur Makmur Abadi`s collector.
- 21 ISPs joined the Post Harvesting Training, and now have the capacity in post harvesting to produce the high quality beans to get a better sales price
- Pest and Disease Management will be conducted in August 2017 to ISPs, so ISPs will provide pest and disease management information to farmers.
- 15 ISPs actively provide regular meetings with farmers to provide GAP and Side Grafting information gradually.

Contribution of public programs

In phase 1, the Head of Suna Village in Jayapura has supported equipment to maintain cocoa farms to 37 farmers with total amount IDR 100.000.000, In phase 2 (sem 2, 2017) he plans to support the more farmers with total amount IDR 200.000.000.

The Government in Jayapura District has supported 3 ISPs and their farmers for clearing farm, GAP and Side Grafting equipment.

The Provincial Government of Papua has a subsidy program in 2016 to revitalize 200 farmer cocoa farms with side grafting, they also provide the fertiliser and pesticides to farmers.

The provincial Government and Jayapura District Government will support demonstration plot competitions and also be involved in the event committee.

8. COCONUT EJ AND NTB[24]

Coconut can be processed into a wide range of products and is experiencing growing popularity in international markets. In 2013, Europe and the USA accounted for over half (49%) of global coconut imports of desiccated coconut (156,851 MT), with the Philippines being the dominant exporter (28% of the market share) of coconut worldwide.

Indonesia is the world's largest coconut producer, growing approximately 18.3 million MT in 2014.The major export sectors are a) coconut milk (creamed and powdered, with Indonesia having 8% and 29% shares respectively of world exports), b) coconut oil (630,568 MT exported in 2013, around 29 per cent of world trade), and c) coconut shell and copra meal for carbon production (Indonesia having 38% and 30% shares respectively of world exports). Nevertheless, Indonesia is behind its competitors in terms of exports, as the vast majority of the country's coconuts are sold in the traditional market for use in domestic cooking. This provides a clear potential for key value chain players to invest in value added coconut products for export markets.

In particular, there is also booming international demand for coconut sugar, fuelled by the rising interest in alternative sweeteners; however, quality concerns mean that this demand centres almost exclusively on sugar which has achieved organic certification.

The local Indonesian market also requires a substantial amount of coconut products. Demand from the local food industry for coconut sugar (a preferred ingredient in sweet soy sauce) remains unmet whilst there also a significant opportunity for developing local integrated processing facilities which can triple the value of coconut.

Although East Java and NTB are major centres of production, coconut is seen as a low value supplementary crop and cultivation remains rudimentary. In NTB island, tree holdings are larger than in East Java but productivity is lower. Most farmers in NTB also do not engage in processing activities due to limited processing business in the area.

[24] The intervention in this subsector was co-managed by SNV (as PRISMA co-facilitator) until Jun'16. PRISMA is now reviewing and evaluating the continuity of the intervention

Meanwhile, there are more than 40,000 coconut farmers in the targeted East Java district Pacitan, where farming households rank among Indonesia's poorest. Some of these coconut farmers have been involved in producing coconut derivative products especially coconut sugar; however, the processing practice remains poor and unhygienic, suggesting that it will be difficult to fulfil the export standard requirement.

From previous focus in East Java and NTB, In semester 1 2017, PRISMA has chosen to focus on East Java only as target locations because (1) there is a clear market opportunity to integrate farmers in the region into the growing market for value added coconut products, and (2) the production techniques and technology of these farmers are rudimentary and productivity is low.

Challenges and constraints

The major challenges to the coconut sector in East Java and Lombok are:

- The quality of coconut sugar is still low farmers lack the knowledge and capacity to improve their processing practice.
- Farmers are poorly linked to large-scale processors or buyers who face difficulties securing stable supply because producers are not organised. As the sugar is produced by home industries, which are numerous and mostly unorganised, processors are having difficulty in aggregating supply
- The coconut sector in East Java and Lombok suffers from low productivity due to lack of GAP, limited replanting agenda despite ageing coconut trees. As coconut is almost always a secondary crop and not regarded as a major income source, farmers have limited interest to invest in agriculture input such as fertilizer.
- Limited market and government actors willing to invest in coconut processing and harvesting technology, as well as poor linkages to seed suppliers, are the major causes contributing to the problem.

Vision of change

PRISMA's vision of change is that by 2018, coconut farmers in the targeted East Java will have increased productivity and have access to higher value markets. This will attract other farmers to enter the value-added coconut product markets and increase production of coconut sugar, for both local and the export market. This vision can be achieved through:

- Integrated coconut processing or manufacturing companies or local buyers establishing processing facilities and/or expanding their coconut sugar-related business in the targeted districts, which can attract farmers to increase their coconut sugar production
- Seedling and fertilizer companies providing inputs and GAP information for suppliers and farmers
- Seedling suppliers providing high-quality coconut seeds to enhance production and productivity.

The PRISMA approach

To achieve this vision, PRISMA will support the private sector and collaborate with it to:

Increase productivity through GAP training and knowledge dissemination.

- The private sector partner will develop GAP training and information materials, manage the demo plots and provide support for farmer training on GAP.

Promote sustainability of the coconut sector through replanting agenda

- Support market linkages to the seed suppliers who will distribute and promote high yield and high quality coconut seeds to farmers for long-term coconut supply assurance.

Increase production and productivity through improved processing practices

- Develop a business model where the private sector partner can take up the suitable processing practices into their strategy alignment. This aims to support farmers to increase coconut sugar quality, production and productivity.

Progress status and signs of systemic change

Big Tree Farms (BTF), an organic, fair trade processing company organised additional socialisation meetings with prospective farmers in Pacitan, East Java, and provided GAP-related information to the first batch. Big Tree Farms has recruited local staff dedicated to identifying and registering farmers and relocated production activities for coconut sugar in order to get closer to East Java because of this intervention. The company has also initiated the study and socialisation process for the second batch of farmers who will be inducted in the next certification process. The company also conducted an organic audit, which revealed that 1,015 farmers obtaining an organic certificate since February 2016. In addition, some of the certified farmers are now able to produce granulated coconut sugar (*gula semut*), a higher value product of coconut sugar. These farmers gained knowledge on good processing of granulated sugar after receiving trainings from Big Tree Farms. In March 2017, Big Tree Farms Farms decided to move out from Pacitan due to decreased demand from foreign buyer because of sugar cane contamination issue in Indonesia. Several companies showed interest to work with coconut sugar farmers who received training from PT BTF and one of them is PT Sentra Usahatama Jaya (SUJ) a major sugar cane producer in Indonesia. Together with PRISMA, SUJ conducted field visit to Pacitan in March 2017 and has plan to conduct field assessment in July 2017.

PT Kai Sun has started to implement the intervention business model in Lombok, focusing on the establishment of coconut aggregation points. It has installed a white copra machine, and in October 2015 initiated the purchase of lower grade coconut (that is, C and D categories). The company has also decided to establish an additional storage facility to accommodate the increased purchases of lower grade coconut. The farmers are likely to benefit from the price paid by Kai Sun for the lower grade produce, as it is higher than that offered by the traditional market.

The large fertiliser company PT Arya Supra Nugraha has partnered with the project to promote its fertiliser in Lombok. This shifting intervention strategy focuses on the productivity increase which can help farmers increase their income by selling more coconuts. The company has provided fertiliser and an expert to establish the demo plots, with the aim of promoting fertiliser use among farmers and building their GAP capacity. Over 100 demo plots have already been set up to facilitate this promotion. The impact of the increase in GAP knowledge is expected to increase productivity and lead to increased sales of all grades of coconut. This will eventually provide greater income for the farmers.

The result of the demo plots has been showing positive results as there are vegetative and generative improvements from the observation such as darker green leaves, new leave shoots, healthier appearance, new influorescences, new nuts unfailing and larger fruits. This shows significant results from the introduction of the fertilizer to the coconut trees

A further study on coconut market in Lombok has also been conducted and results show significant room for improvement in productivity up to 50%. Hence, coconut buyers in Java and Bali will be able to absorb should there be an increase in production from the fertilizer application by the farmers.

Despite the good result from demoplot, PT ASN decided not to continue the intervention and focused on selling fertilizer to palm oil companies. Learning from the previous intervention with PT ASN, PRISMA has shifted its strategy and plan to promote fertilizer application and GAP to coconut farmers by working with a fertilizer company who wants to enter the retail market and a large-scale processor or buyer who aims to secure stable supply from farmers.

Contribution to public programs

The district government of Blitar supports PRISMA's idea on coconut replanting using Dana Desa funds, and has plans to share this idea with village heads in Blitar and Tulungagung in July. There is also an opportunity to work with the KOMPAK BUMDes program in Pacitan and Trenggalek to promote replanting and intercropping in both districts.

9. COCONUT NTT[25]

Although coconut can be processed into a wide range of products, global demand for copra, copra cake, and crude coconut oil has declined. According to FAO, recently there has been significant fall on global demand for copra. Nevertheless, Indonesia's supply remains stable, primarily because of price competitiveness. Another coconut product that has significant growing demand for the past few years mainly in developed countries is organic Virgin Coconut Oil (VCO). Driven by rising consumer attention on healthier diets, VCO products have now become more known in the global market.

Domestic demand for coconut products is also increasing. Due to growing industrial use, local demand for copra, crude coconut oil (CCO) and VCO has been particularly rising. The required VCO includes both VCO as final product or to be processed further into toiletries products such as shampoo and soap.

NTT produces around 2% of the total domestic supply of fresh coconut, with the potential to improve the production and productivity further. The majority of the province's coconut plantations are concentrated in six districts; Malaka, Kupang, East Flores, Ende, Nagekeo and Sikka, which together account for 79% (71,000 ha) of NTT's coconut plantation area and accommodate more than 45% of the province's coconut farmers. Fresh coconut, copra and VCO are the dominant coconut products in NTT. From 110,000 coconut farming households in the six major production districts, around 32,000 households are involved in copra production and 3,300 households in VCO production. In Flores, copra farmers make on-farm copra as part of their business, while in Timor village collectors buy fresh coconut from farmers to make off-farm copra.

NTT is the third poorest province in Indonesia. The majority of farmers involved in coconut, copra and VCO production are poor. Copra and VCO are more profitable than fresh coconut. VCO, a home-based industry, is generally dominated by female entrepreneurs. Similarly, women play an important role in copra production, albeit a slightly less dominant one.

Challenges and constraints

The overarching problems encountered by the coconut, copra and VCO farmers in NTT are i) the declining productivity of coconut, ii) the low quality of copra, and iii) the low quality and inadequate production of value-added coconut products such as VCO and CCO. Together, these have resulted in reduced income from coconut and coconut products. The specific problems and their underlying causes are summarised below.

- **Production of value added coconut products such as VCO is low and not known to international buyers.** Previous government program failed to attract buyers; this has discouraged the trained women to continue producing VCO with the expected quality standard. Accordingly, the quality of VCO produced in NTT is low at the moment. Coupled with the absence of market linkage to buyers, lack of information on required standard quality and limited access to quality processing equipment, farmers suffer low competitiveness from coconut products, thus resulting in low income.
- **Decreasing productivity of coconut trees**, particularly in Sikka and Nagekeo due to poor management of aging trees. High yield coconut seedlings are produced and supplied by specific nurseries via government replenishment projects. Farmers do not have regular access to best quality seedlings and many are reluctant to plant new trees due to lack of awareness and knowledge towards its long-term benefit.
- **Low quality of copra in NTT** due to a) use of old technology, and b) low provision of information about better technologies. On-farm and off-farm copra producers operate at sub-optimal capacity as they do not have enough capital to finance expansion of production. Limited interest in and access to financial services exacerbates the problem.
- **Lack of incentives for public extension services** to provide information on coconut, copra and other coconut by-products. Government subsidies have deterred private sector actors from providing relevant information on coconut trees replenishment and quality standards for copra. Provincial traders demonstrate weak knowledge and capacity for improving existing copra drying techniques at the

[25] Interventions in this subsector are being co-managed by Oxfam Indonesia (as PRISMA's co-facilitator).

producer level. Financial institutions (FIs) are not motivated to invest in developing this market segment. They do not understand the need of copra or other coconut by-product markets.

Vision of change

PRISMA'S vision of change is that by 2018, coconut farmers in NTT will have increased their income by strengthening the diversified use of fresh coconut in better quality copra production and increased production of value-added products. This can be achieved through changes in the service markets to ensure:

- Improved availability of knowledge, tools and technology, market linkages and financial services for coconut farmers in general, VCO, CCO and copra producers in specific, and
- Improved availability of high-yield coconut seedlings for farmers.

The PRISMA approach

PRISMA aims to collaborate with private sector and public sector partners to implement the following interventions in order to realise the vision and unlock the potential of the coconut sub-sector in NTT to benefit farmers living in poverty.

Support industrial organic VCO consumers to develop a sourcing model from coconut farmers in Flores

- An industrial buyer provides organic certification process to coconut farmers in Flores through socialisation and information dissemination. Farmers are expected to practice organic farming on their coconut lands, resulting in high volume of high quality organic coconut supply.
- A market linkage between industrial buyer and local Intermediate Service Provider (ISP) brings to an agreement in which the ISP will build local organic VCO production house
- Aggregation of fresh organic coconuts for VCO production by ISP to achieve the minimum quantities required by industrial buyers. The establishment of VCO production house will be able to absorb the fresh coconut supply from local farmers

Support industrial coconut products' buyers to develop sourcing models from coconut farmers in Flores

- An industrial buyer develops processing/aggregation facility to produce/refine copra/CCO/other coconut products using locally sourced coconuts from several major districts in Flores
- Market linkages between industrial buyer and local Intermediate Service Provider (ISP) will be developed to ensure a proper supply chain which can benefit the poor coconut farmers as well as to ensure adequate supply of coconut materials to meet the industrial processing capacity

Support seedling producers to promote usage of high-yield seedlings and systematic management of replenishment plans among the coconut farmers

- Commercialise the supply of seedlings to farmers and boost coconut production. Copra or VCO collectors will act as intermediaries between the nurseries and the farmers, incentivized by the additional income they obtain as seedling sellers.
- Nurseries will be incentivised to expand their business as the demand for coconut trees expand.
- Encourage government to participate in promoting the use of high-yield seedlings

Progress status and signs of systemic change

PRISMA has started implementing the first intervention 'Support industrial organic VCO consumers to develop a sourcing model from coconut farmers in Flores' with CV Nusa Permai as the private sector partner.

- Nusa Permai has shown commitment since the initial partnership in early 2016. It has agreed to procure organic VCO supplied by the ISPs/aggregators at an agreed price. It is willing to pay the organic certification expenses in targeted areas and currently has registered 2,113 farmers in Sikka and East Flores districts for organic certification through the Control Union as the first batch.

- Several companies have shown interest to join in the intervention. Three MOUs between Nusa Permai and 3 local entities as ISPs have been signed in June 2016. Under these MOUs, 2 VCO production houses are currently being built in Sikka and another one will be built in Adonara (East Flores).
- Challenges occur during the construction of the production house, mainly due to the huge investment both ISPs must provide. Over IDR 3 billion must be invested by each ISP to complete the so-called organic VCO factory. Another challenge is due to lack of experience of the ISP in the coconut business, where the companies need more support in both management and technical issues before running the VCO business. Despite the challenges, both factories are almost completed and the production testing will begin shortly.
- Looking at the development of the VCO business, more companies have shown interest to invest and has also approached the ISP in Adonara. It offered a partnership where it will invest a machinery to produce coconut water in the VCO production house in Adonara. This will further bring added value to the coconut products sold by the local farmers in the area.
- PRISMA realizes the length of time needed to complete the construction of VCO along with the organic certification process. Therefore, PRISMA is currently developing a sourcing model for non-organic coconut products to bigger industrial buyers.

Contribution to the public program

N/A

10. COFFEE NTT

Coffee is an important globally-traded commodity with export potential for producing countries. The five-year historical data from the USDA (2012-2016) indicates a positive Compound Annual Growth Rate (CAGR) of 1.55% in world coffee consumption[26], but with negative CAGR of -0.87% in world coffee production. This means, despite the fact that the current difference between production and consumption is positive (3.45 million bags), if the growth rate continues, a deficit of 10.18 million bags will happen in the next 5 years and a deficit of 40.41 million bags in the next 15 years.

As one of speciality coffee producers, Indonesia is the world's fourth largest coffee producer and exporter. It produces approximately 10 million bags of green beans annually (equivalent of 643,854 MT of coffee) from about 1.2M ha farms[27]. At the same time, Indonesia's domestic consumption is deemed low, only about 166,200 MT per year[28]. A clear opportunity exists to increase production volume and quality to meet the international demand for coffee.

There are five coffee production areas in Indonesia: Sumatera, Java, Eastern Nusa Tenggara and Bali, Kalimantan, and Sulawesi where 96% of production comes from smallholder farmers[29]. Sumatera has the widest area, accounting for more than 770,000 ha dedicated to coffee, producing 442.241 MT every year[30]. Another coffee producing area (and where it is one of the region's main crops) is Eastern Nusa Tenggara. There are an estimated more than 100,000 coffee farmers in NTT province and its coffee production area comprises 6% of the total national area. Here, the island of Flores produces high quality Arabica coffee; its *kopi Flores* has a successful international market reputation. Its main production areas are Ngada and few neighbouring districts such as Manggarai, East Manggarai and Ende. Together, these regions produce about 33% of NTT's coffee, benefitting more than 25,000 farmers. Productivity of coffee farmers in Flores island is relatively low (an average of 440 kg GBE for mature producing trees per ha compared to the national productivity rate of 716 kg GBE per ha[31]). Despite its successful international market reputation, most farmers do not receive a favourable price as the overall processed coffee quality is still low.

[26] (USDA FAS, 2016)
[27] (Directorate General of Estate Crop, 2014)
[28] (International Coffee Organization, 2016)
[29] (Directorate General of Estate Crop, 2014)
[30] (Directorate General of Estate Crop, 2014)
[31] (Directorate General of Estate Crop, 2014)

PRISMA has chosen NTT to start the pilot because (a) there is high growth potential here, (b) farmers in the region experience difficulties accessing training and information on good farming and processing practices, and (c) these areas produce speciality coffee with a high market value. Another area that PRISMA is currently assessing is East Java.

Challenges and constraints

The major challenges and constraints faced by the coffee sector in Flores Island, NTT are:

- **Lack of access to farming knowledge and capital**. Incapable extension services and limited availability of private sectors who provide knowledge of good agricultural and post-harvest processing practices cause the low proficiency in coffee farming. Eventually, farmers are unable to achieve high productivity and premium quality of speciality green coffee.
- **Reaching peak productivity age**. Most coffee trees in Flores are too old and tall. Coffee trees should be pruned twice a year after harvest and be continuously rejuvenated (either grafting method or replantation). Since farmers do not apply these practices, the yield per tree is low and coffee beans are difficult to be harvested.
- **Lack of added value process for Arabica Flores coffee**. Limited large good quality coffee buyer who can provide favourable payment system and coffee processor provides disincentives for farmers to sell and/or to practice value added process for good quality coffee. They choose to accept lower prices with a quick payment system.
- **Lack of access to financial support**. Constraints on financial capital contribute to practices that farmers do not apply and limit the capacity of subsequent market players such as cooperatives or buyers.

Vision of Change

By 2018, coffee farmers in Flores (NTT) island will be able to increase their productivity and the supply of high quality coffee to export market, and farmers are engaged in more efficient market system that provide higher market value for their harvest. This vision can be achieved through:

Collaboration between coffee companies (exporter, and other buyers) and processors (cooperatives/non-cooperatives) to provide better information access about GAP, post-harvest skills and farming or processing technology to farmers

Provision of loan and assistance by financial institutions to processors (cooperatives/non-cooperatives) and individual farmers so they can increase the production of good quality coffee;

- Prioritizing coffee commodity and provision of extension services (including rejuvenation) from the government to the coffee farmers.

The PRISMA approach

To achieve this vision, PRISMA will support and collaborate with the private and public sectors to:

Promote and disseminate the use of better agricultural practices (GAP) and good post-harvest processing (GPP) techniques in coffee production by partnering with coffee processors, coffee buyers, and government.

- PRISMA endorses a business model in which GAP and GPP can be disseminated to smallholder coffee growers by local cooperatives, high quality coffee processors, and farmers groups.
- PRISMA has partnered with the Indonesian Coffee and Cocoa Research Institute (ICCRI) to deliver services in the form of Training of Trainer (ToT) including mentoring and technical assistance to cooperatives, business units and civil society organizations. Technical assistances comprise (1) GAP related to coffee bean quality issues (red cherries), and (2) coffee seedling growers and coffee clinics (on research, trialling, clone propagation). Up to now, coffee seedling growers and 77 coffee cadres under cooperatives have established and disseminated GAP related information to their farmer members.

- PRISMA partners with local governments (districts where coffee is a main crop) to enhance continuous provision of extension services to coffee farmers.

Facilitate better access to market and resources for coffee farmers by partnering with coffee exporters, coffee processors, and financial institution.

- The downstream coffee facilities will be developed in the form of cooperatives/coffee processing units (CPUs). The buyer(s) as private sector partner will provide technical assistance to the cooperatives/CCPUs on how to operate the facilities.
- Partnership with coffee processors (both cooperative and private owned processors) is aimed at developing a standardized quality control of Arabica specialty coffee.
- To induce higher demand for specialty coffee, broadening access to markets is achieved by introducing producers in the regions and new private owned processors in an auction and trade expo.
- Together with SAFIRA, PRISMA developed a business model for an appropriate credit scheme and financial loan product for coffee processing units. The financial institution partner will provide loans to processing units based on a buying contract with the coffee buyer.

Progress and signs of systemic change

- The intervention pilot phase in 2015-2016 shows signs of success. PRISMA has signed contracts with six cooperatives in Manggarai and Bajawa.
- Six cooperatives in Ngada and Manggarai who manage CPUs have received loan approval totalling IDR 3 billion (IDR 500,000 each) from Bank NTT. Four cooperatives have already used a total of IDR 970 million to purchase coffee from farmers. Although the loan scheme did not continue in 2016, Bank NTT is currently developing a loan product to support coffee farmers in Flores.
- Through their cadres, cooperatives disseminate knowledge on GAP and GPP to enable farmers to produce good quality coffee cherries and speciality coffee beans.
- Starting in 2017, PRISMA has expanded its interventions to broader market actors, from cooperatives to private owned processors. As a result, PRISMA signed MoU with two big processors in June 2017.

Contribution of public programs

Local government is involved in the development of seedlings in areas where PRISMA is also working. In Manggarai, the government supports the project by purchasing the input Hypotan (to increase productivity) and utilizing cadres in the cooperatives to disseminate GAP and GPP knowledge to farmers in other villages.

The local government of Ngada has signed an MoU with PRISMA to enhance their coffee related programs: rejuvenation, intensification, replantation, and development of extension services.

11. EXTENSION AND ICT SERVICES EJ & NTB

In Indonesia, extension services are acknowledged as an important component of achieving food security. National legislation (UU No. 16 Tahun 2006) stipulates three types of extension workers: public, private, and self-help/voluntary. However, most extension services are conducted by public workers, as they are the only actors with a clear mandate to do so. Private workers are usually employed by input suppliers and, despite the 2006 regulation, they are not registered with nor regulated by the government. The last category – voluntary or self-help workers – are lead farmers, whom the government trains and provides with a certificate of competency.

According to data from 2015, there are 32,299 public extension workers for 71,470 farming villages throughout Indonesia. Government legislation (UU No. 19 Tahun 2013) states that the ideal is to have one worker for every farming village, which means there is a gap of about 39,190 workers. The situation is made worse by the fact that the bulk of the extension workers were recruited in the early 1980s: the majority are thus due for retirement within the next five years. The government is well aware that it would be difficult to add 39,000

workers to its payroll. As a solution to close the gap, the Government plans to recruit and train voluntary extension workers instead.

The sector's scope has been expanded to include Information and Communications Technology (ICT) services as we see it as the key driver to solve information shortages at the farmer level. ICT is an umbrella term that includes any communication device or application, encompassing: radio, television, mobile phones, computers, and so on. As the nature of ICT is cross-sector and cross-provinces, we will provide a national overview instead of subsector-based.

PRISMA's recent large scale farmers survey in East Java, NTB, and NTT points to a number of potentials for utilizing ICT in Indonesia. The majority of farmers (80%) watch TV regularly and use mobile phones (75%). Smartphone ownership and internet usage are still low however, at 15% and 5% respectively. Nevertheless, the low internet penetration rate does not temper the exuberance of the local start-up industry. No less than 20 agriculture start-ups were setup in recent years and the majority of them have received funding.

Interest to leverage ICT potential is also demonstrated by the industry players with various input producers releasing or working on smartphone applications. The majority of these applications are for internal use or limited to their distributors and partners. However, a few companies have also envisioned a wider use of such applications to include farmers, government extension workers, and other non-competing input producers. One of the input-producers even invited an agriculture start-up company from India to pilot their solution in Indonesia.

Subsector overview: East Java

East Java is one of the most important agricultural provinces in Indonesia. Based on 2011 official statistics, East Java's contribution towards national production is 16.08% for rice, 30.85% for maize, and 43.11% for soybean. There are 2.1 million ha of crop area in East Java, with an average land ownership of less than 0.5 ha. There are at least 4.2 million farming households in East Java.

East Java farmers are frequently regarded as the most advanced nationally. This is probably due to the fact that some district governments – such as Malang or Banyuwangi – are open to innovation and have actively supported their farmers. Farmers in East Java also benefit from the presence of strong government research bodies that focus on high yield seed and agriculture technologies. In the majority of districts, private agronomists have a significant presence and are also a source of information for farmers.

However, there are only 4,812 public extension workers in the whole province, which means that a single worker has to cover 873 farmer households. Assuming 260 working days per year, and a single worker able to serve 3.35 households per day, each farmer household will only see a public extension worker once a year.

Subsector overview: NTB

Like East Java, NTB is one of Indonesia's most important agricultural provinces, especially for main food crops such as soybean and maize. It is one of the country's epicentres of soybean production, accounting for 9% of national production and with a harvested area amounting to 10% (62,900 ha) of Indonesia's total soybean area harvested in 2012. At the same time, maize has expanded rapidly in NTB. Based on 2012 official statistics, NTB accounted for 3.3% of Indonesia's maize production, compared to 2007 when it contributed only 0.9%. The harvested maize area has grown rapidly; in 2012 it reached 116,817 ha, with productivity of 5.4 MT/ha (higher than the national average of 4.7 MT/ha).

Post-harvest expertise, and pest and disease management are key areas of concern for NTB farmers, who lack access to reliable sources of information. The majority rely other farmers for advice; some get information from kiosks. This limited access to information also affects public extension service workers, who lack up-to-date, relevant knowledge about pest and disease. Average loss due to pest attack can be as high as 30% per harvest.

In NTB, there are 1,785 public extension workers with a routine schedule for field visits from Monday to Thursday each week. A public extension worker provides technical assistance to a handful of farmer groups, where one group may have more than 200 members. The limited number of public extension workers

combined with remote and hard-to-reach areas means that many farmers receive no benefit from the public extension service.

Challenges and constraints

The major challenges faced by the extension and ICT services sector in East Java and NTB are:

- **Limited provision of information**. Farmers have insufficient knowledge of modern, appropriate and efficient farming techniques and practices, which results in low productivity compared to the potential. This is caused by a) a lack of public extension workers, b) general government neglect of non-priority crop farmers, and c) limited reach of private extension services.
- **Limited capacity of public extension workers**. Minimum upfront training combined with very limited opportunities for continuous learning compromises the quality of the government extension service. It is common to find experienced or progressive farmers who understand agriculture better than public extension workers. Some farmers have understandably become sceptical of public extension workers and are beginning to disregard their advice completely.
- **Poor agricultural kiosk extension services**. Kiosk owners usually direct farmers to purchase products that bring them the highest margins, with little regard to product quality or the farmer's actual needs. This is a serious challenge because collectively these kiosks reach practically all farmers, who are dependent on them for both input availability and advice.
- **Poor ICT actors understanding of the sector.** Most of the agriculture start-ups have very minimum business experience and little to no agriculture knowledge..

Vision of change

PRISMA'S vision is one of systemic change, where more extension service or information providers enter the market for commercial reasons. Input suppliers will increase and improve the embedded service that they provide and telecommunication or start-up companies will enter the market by providing agriculture supporting services.

The PRISMA approach

To achieve its vision of change, PRISMA will collaborate with the private sector to:

Increase the capacity of government extension service workers through a smartphone application

- Support a private application development company to form partnership with the NTB provincial government extension service office, with a focus on tackling pest and disease.
- The private sector partner will build a smartphone application to help public extension workers identify pest and disease and get up-to-date, relevant advice on how to tackle it. The extension workers will then deliver this technical advice to their farmers.
- The private sector partner has a long-term plan regarding the partnership; it intends to sell the data collected from the application usage as market intelligence data.

Develop a business model for agriculture Start-up

- Support a selected start-up and/or venture capital company to develop sustainable and pro-poor business model.
- There is a lot of interest in the agriculture sector recently from technology start-ups, venture capitalists, and also the government. However, in reality there is still very little impact on the ground and most of the solutions that the industry has come out with are unlikely to be scaled up.
- PRISMA intends to take part in this emerging trend and steer its development towards a more sustainable and scalable model. Our first activity is to conduct Focus Group Discussions with industry players to build a common understanding of the challenges and opportunities that smallholder farmers in Indonesia are facing.

Develop an agriculture value chain platform

- Support the partnership between an agriculture start-up company and an agriculture input producer to introduce an agriculture value chain platform.
- The start-up intends to hire people on the ground to act as information and service providers while earning revenue from input and output sales as well as from wealth of agriculture information which they collected.
- The input producers will support the start-up with agriculture content and also on the ground training or promotion activities. They will benefit from the alternative retail channel made possible by the agriculture platform.
- The goal is to include as many input producers and also off-takers in the system so the current inefficiencies in the value chain can be reduced.
- Progress and signs of systemic change

The Pest & Disease Smartphone Application intervention has reached 865 registered users and the reception from the pilot sub-districts has been positive. The adoption rate however is not as high as what it could have been due to technical limitations of our partner. As a result, we are currently in negotiation with another partner to take over the intervention. The new partner will bring stronger technical and business development capacity required to bring the application to the next level.

Despite their limitations, the current partner has shown buy-in to the intervention by submitting it for a Government grant and they succeeded in receiving some grant money to conduct more field research and expand both the quantity and quality of the application's content. We therefore expect to retain the current partner as the content provider for the application moving forward. Another sign of systemic change is the positive reaction from input producers regarding the application, the few that are aware of the application have shown interest to advertise on the application and one company even intended to copy the concept for their own internal application. With pest and disease being a serious issue for majority of farmers, we are cautiously optimistic that such applications can play a significant role in educating farmers on proper crop protection.

Contribution of public programs

The government is supportive of the start-up industry in general and has an official body (BEKRAF) which aims to support this budding industry. There was even a launch of 5 agriculture start-ups by President Jokowi as ICT is seen as a potential solution to the long and inefficient agriculture value-chain. However there has been no concrete support or funding provided to these start-ups beyond the media recognition.

Public extension services, on the other hand, is no longer a top priority for the government. The government's current main program is to identify, recruit and train independent extension service workers to bolster the dwindling amount of public extension workers. PRISMA has not observed any direct contribution from this program, as the majority of these independent extension workers are lead farmers who are already providing extension services in their respective communities. The government's plan to train and certify these independent workers remains sporadic; of concern is the lack of proper incentives in place for these workers. PRISMA is continuing to observe developments and will report any significant change as it occurs.

12. MAIZE DRYING AND STORAGE NTT[32]

NTT ranks seventh out of the 10 largest maize-producing provinces in Indonesia. Most of NTT's poor farmers grow maize following traditional, minimalistic cultivation techniques, and perceive it to be a crop with low commercial value. In 2015, the province produced approximately 685,000 MT of maize, and over the last few years has experienced an average annual growth rate of 5%. Almost 99% of total production is absorbed by the local market and is mainly used for human and animal consumption at a household level. Only a few farmers have started to grow industrial varieties of maize to supply the small local feed mills. Overall, the productivity and production capacity of maize farmers in NTT is very low, and to meet local demand, NTT imports maize from NTB and South Sulawesi provinces.

[32] Interventions in this subsector are being co-managed by YIPD (Yayasan Inovasi Pemerintahan Daerah) as PRISMA's co-facilitator.

Maize farmers in NTT use traditional post-harvest drying techniques – using smoke, and in the sun – for both the grain and the cob. Their storage techniques also tend to be highly traditional, involving hanging the cobs above the kitchen fireplace, storing grain inside airtight bags, jerry cans, plastic bottles and water tanks.

Challenges and constraints

The main challenge to NTT's maize farmers is a loss of 30-50% of their harvest, which is due to:

- **Traditional storage practices**. This leads to the grain being damaged after being stored for more than four months
- Lack of awareness of alternative ways of drying and storing grain. Farmers are continuing to use traditional practices.
- **Limited or non-existent information on alternatives to traditional practices**. Farmers remain unaware of the options available to them to improve their practices.
- **Lack of involvement of the private sector**, which has not yet entered this market segment.
- **Lack of involvement of local government extension services**.

Vision of change

PRISMA's vision of change is that by 2018, maize farmers will have increased their through reducing post-harvest loss and improving the quality of maize during the drying and storing processes. This will be achieved by:

- Improved drying and storage practices at the service level, at various stages of the value chain, primarily at the farmer level.

The PRISMA approach

PRISMA's field assessment showed that given the low volume of production in NTT, there is not a strong business case for investment in creating large drying and storage facilities, which will not immediately improve the current drying and storage practices of the farmers. Rather, promoting the availability and usage of appropriate storage products and materials at the household level, in addition to improving the knowledge and capacity of farmers for proper drying and storage techniques, seemed to be viable and immediate solutions to the problem.

Based on the analysis, the focus of the intervention is on improving the drying and storage practices among the NTT's maize farmers at the household level.

PRISMA is collaborating with the private sector partners to:

Support the promotion of improved technology and appropriate tools & materials for good postharvest (drying & storing) practices for maize farmers in NTT.

- Promote and develop appropriate storage facilities in partnership with private tool and materials producers. Knowledge and information about good post-harvesting techniques will be also communicated to farmers as embedded information. PRISMA has considered the following opportunities:
  - There is a need to improve drying and storage practices at the household level.
  - The intervention can be initiated as a small pilot in areas with maize surplus to test and prove the concept.
  - The intervention is relatively simple and does not require significant resources.
  - Success in pilot area will trigger replications by other households.
  - The design of the intervention is to reach farmers at the household level.

However, in further developing and implementing the intervention, the following risks were identified:

- Appropriate technology comes with associated costs as opposed to the often simpler and cost-free traditional methods;
- Additional investment for improved drying and storage may not be considered necessary by the farmers due to their subsistence orientation;
- Farmers with large volume of production prefer to sell their produce instead of investing in storage;
- Drying and storage is a function naturally served by collectors and traders - there is a risk of increased competition, and
- The business model relies on the sale of non-consumables (non-repetitive business may limit motivation of potential traders)

Progress and signs of systemic change

PRISMA has started implementing the intervention: 'Support the promotion of improved technology and appropriate tools & materials for good postharvest (drying & storing) practices for maize farmers in NTT'.

- An MoU was signed with PT Buana Ika Syahputera (BIS) on August 14, 2015, and the main highlights and achievements since then are:
  - A maize expert and a marketing consultant have been contracted to provide knowledge to BIS on maize and the market situation in NTT;
  - The portable silos have been tested by BPTP NTT for storing dry maize grains;
  - BIS contributed to the identification and selection of ISPs;
  - 66 ISPs were selected and have signed business agreements with BIS;
  - 18 ToT sessions were conducted for the ISPs on drying and storage technology; 238 members of staff participated;
  - 34 ISPs have socialised the drying and storage technology; 2,250 maize farmers have been informed about the use and benefit of jerry cans;
  - BISI has invested in the design of the new jerry can moulds, as per the demand of the farmers;
  - 2,789 jerry cans were delivered to ISPs and 1,026 farmers bought 1,789 jerrycans up to June 2017;
  - Potential orders for the 2nd semester 2017 is 11,564 units using Village Funds (Dana Desa) which will be the short-term attraction for the farmers to implement a better process of drying & storing maize grains. Some other villages plan to set-up village owned companies (Bumdes – Badan Usaha Milik Desa) to act as ISPs.
- The challenges encountered during the first few months of implementation are:
  - High investment is one of the barriers to entry for the market, although the potential huge demand may attract other plastic companies to produce and sell the new jerry can.
  - A Jerry Can producing company took time to deliver the first container and therefore, farmers used traditional practices before the can arrived.
  - El Nino prolonged the dry season, causing crop failure and hence, some farmers did not have enough produce to store.
- Early signs of systemic change are:
  - The partner (PT BISI) has adopted the business model; it has engaged ISPs in the promotion and sale of the new jerry cans (portable silo), and trains the ISPs on promoting jerry-cans and the new D&S technology;
  - The partner (PT BISI) has modified the design of portable silo to make it more appropriate for maize storage;
  - The partner (PT BISI) intends to establish a plastic water reservoir factory in Kupang;

- An ISP used and promoted portable silos for storing other agricultural grains e.g. rice.

Contribution of public programs

A local government program has started to encourage maize farmers to utilise used drums as containers to store maize. One other PRISMA program in Timor Island promotes the use of composite seed. Some other development agencies like FAO had activities on promoting jerry cans for storage of maize.

13. MAIZE EJ

Maize is one of Indonesia's primary food crops. Across the country, almost 20 million MT are grown each year on three to four million ha of farmland; more than half is used to cater to the ever-increasing demand for animal feed. It is a seasonal crop, with a surplus during peak harvest months and a severe undersupply the rest of the year. PRISMA has identified a clear opportunity to increase maize production, productivity and quality as part of Indonesia's drive towards import substitution.

East Java province is the largest producer of maize in Indonesia; however, its growth is slight growth, at only 0.49% per year (2014 figures). Productivity is in line with the national average (5.05 MT per ha) but this is below that of NTB. PRISMA is focusing on the island of Madura, where farmers cultivate maize as a subsistence crop and where productivity is less than a quarter (1.7 MT per ha) of that on mainland East Java. Traditional cultivation methods, used of local seed varieties and the lack of knowledge of and access to irrigation and post-harvest management services are the main reasons for this.

PRISMA has chosen to focus on the three Madura districts of Sampang, Sumenep and Pamekasan because (a) productivity here is low while the potential exists to significantly increase yields, (b) there is a substantial business opportunity for input suppliers to provide improved quality hybrid, as current usage is low, and (c) the intervention will support local government's plan to make Madura self-sufficient in maize by 2018.

Challenges and constraints

Farmers in Madura are unable to increase their maize production and productivity for three main reasons:

- **Lack of understanding of GAP**. Many maize farmers are unaware of the benefits of using improved seed and continue to rely on local seed varieties which provide lower yields.
- **Availability of more lucrative commodities**. Many farmers here have chosen to plant tobacco. The pull towards this is increased by two local cigarette companies which have provided storage facilities for the crop.
- **Lacklustre government subsidies which provide no incentives**. Farmers get free or subsidised hybrid seed and fertiliser from the government. Not only is this sustainable, it provides no incentives for the private sector to get involved in supplying these inputs.

Vision of change

PRISMA's vision of change is that by 2018 maize farmers on Madura Island will have increased their production and productivity of maize. Their maize will be of a better quality and they will be getting better incomes as a result. This will attract more farmers in East Java to go into maize cultivation, increasing domestic production and helping Indonesia to fill the import gap. This can be achieved in the following ways:

- **Seed companies** starting to supply hybrid seed in the areas where farmers have limited or no access to hybrid seed;
- **Seed companies** providing information on GAP as an embedded service to Madura maize farmers through their distribution network, and
- **Feed millers and/or traders** promoting appropriate post-harvest practices and maize quality standards.

The PRISMA approach

To achieve this, PRISMA plans to collaborate with a seed producing company in order to:

Promote the use of hybrid maize seed

- Work with hybrid seed producers to promote usage of hybrid seed among farmers in East Java. This will include developing appropriate business model for private companies to enter into open market, develop promotional materials and conduct promotional campaigns.
- Identify ISPs to conduct demonstration plots in order to promote the benefits of using maize hybrid seed.
- Promote the results of the initial intervention to attract other private companies to enter into East Java market.

Promote appropriate post-harvest services

- PRISMA is identifying suitable partners to assist farmers to improve their post-harvest practices (e.g. more effective drying and storing techniques) in order to standardise the quality of maize.

Promote the use of improved seed suitable for dry season farming in non-irrigated drylands

- PRISMA is identifying potential partners and plans to conduct further assessments in non-irrigated areas where maize is planted.

Progress and signs of systemic change

- PRISMA has started promoting hybrid maize seed to increase farmer's yield and thereby income
- PT AHSTI as partner already applied business model, recruited staffs, and allocated seeds to be sold at Madura since September 2014.
- Private seed company PT AHSTI is PRISMA's partner and has been promoting the use of hybrid seed in Madura (Sumenep and Pamekasan), despite progress being hindered by El Nino and government subsidised seed.
- PT AHSTI uses promotional activities to disseminate information about GAP and its application specifically in terms of hybrid maize cultivation. When put into practice, GAP contributes to higher yields.
- PRISMA promoted the results of PT. AHSTI interventions to PT. Dupont, PT. BISI International and PT. Syngenta, and signed partnership agreement to promote hybrid maize seed in East Java. DuPont had earlier decided to withdraw from Madura but now agreed to collaborate with PRISMA.
- PRISMA is currently facilitating a Public Private Collaboration in the Sumenep district in order to avoid unnecessary competition between government subsidy program and private sector's existing market. The collaboration will encourage the private sector to operate in the open market.
- Both private and public sectors especially among the seed companies and District Agriculture Office of Sumenep agreed to expand the cultivation area of hybrid seeds and move forward to the locations where farmers are still using local seeds. This effort will also involve a finance institution as well as off takers.

Contribution of other publicly funded programs

The government is providing extension services and is involved in the distribution of subsidized hybrid maize seed to farmers, which may affect the impact of PRISMA's intervention despite being on a very limited scale. Nevertheless, PRISMA's impact assessment will ensure that the actual impact of the intervention is calculated, and not overlapped with any impact attributable to the government initiative.

14. MAIZE, NTB

Maize is one of Indonesia's primary food crops. Across the country almost 20 million MT are grown each year on three to four million ha of farmland; more than half is used to cater to the ever-increasing demand for animal feed. It is a seasonal crop, with a surplus during peak harvest months and a severe undersupply the rest of

the year. PRISMA has identified a clear opportunity to increase maize production, productivity and quality as part of Indonesia's drive towards import substitution.

At national level the price of maize has been increasing steadily over recent years. The province of NTB has experienced significant growth in its maize production, with the productivity being above the national average at 5.8 MT per ha. Most farmers here plant their crop during the wet season on dry farmland, with only a small number having the capacity to irrigate their land during the dry season. Despite all these opportunities, farmers still experience low profit from maize cultivation. In addition to that, the import restriction leads to a hike in harvest prices, limiting maize traders' capacity to purchase maize. Maize makes up to 50% of raw material for poultry feed, and contributes to 30% of feed production cost. The maize price hike cannot be passed on directly to consumers, therefore reducing feed mills' and traders' margins. On the other hand, improper application of maize good agricultural practices (GAP) and good handling practices (GHP) hinders farmers from obtaining optimum productivity which can be up to 8 to 10 MT per ha, and optimum price from traders. On top of that, particularly in Lombok, farmers' limited access to in-kind credit, agricultural machineries, and traders adds on to the low price and profit received by farmers.

Around 127,000 ha of land in NTB is given over to maize farming, with approximately 87,700 maize farming households living below the poverty line. Just over half of these (43,900) are in PRISMA's four target districts: East Lombok and Central Lombok West Lombok and North Lombok. PRISMA has chosen these districts because of there are large harvested areas of maize cultivation but farmers still have lower productivity compared to the potential yield.

Challenges and constraints

Maize farmers in NTB find it difficult to increase their income because of three major reasons:

- **Maize productivity not reaching its optimum level due to improper application of GAP**. This can be traced to the limited amount of information farmers obtain from public extension officers, as they only visit farmers at times of subsidy provision and proposal development. On the other hand, input suppliers do provide information services, however their delivery has not been effectively received by farmers. In addition to that, farmers perceive GAP application as more complicated, labour-intensive, and costly. Even for farmers who realize the net benefits of GAP, applying them would require more financial resources and extensive capital.
- **Limited affordable options for finance, particularly given the difficulties in accessing bank loans**. The use of hybrid seed requires a sufficient supply of other inputs such as fertiliser, agro chemicals (e.g. herbicide, pesticide) and labour, as well as careful and informed treatment and maintenance. Poor farmers have little money to support these, and no access to external financial resources. Some farmers rely on moneylenders who provide loans at exorbitant rates of interest. On the other hand, banks are reluctant to provide loans to farmers due to their perceived low bankability. Farmers tend to resort to borrowing from other sources.
- **Limited access to post-harvest services for farmers.** Maize prices vary depending on the physical form in which it is being sold, i.e. grains are much more expensive than cobs. Nevertheless, farmers particularly in West and Central Lombok, do not have access to affordable maize threshing machines or service providers.

Vision of change

PRISMA's vision of change is that by 2018, maize farmers in NTB will increase the volume and quality of their maize production, in ways which are sustainable and income increasing. This will attract other maize farmers to adopt GAP and start producing high quality hybrid maize. Domestic production will increase, contributing towards filling the export gap. This will be achieved through:

- **Promoting affordable in-kind credit** from companies or financial institutions to assist farmers in accessing higher quality inputs without having to bear high interest costs.
- PRISMA is also in the process of developing a GAP and GHP module that would also become a media for BISI's promotion

- PRISMA is connecting farmers to maize threshing machinery credit for the next harvest season
- **Input companies** providing GAP knowledge as an embedded service. This will address hybrid maize cultivation, informing farmers on the use and benefits of non-subsidized fertiliser, post-harvest handling, and effective drying and storage services;
- **Private fertiliser companies** carrying out the promotion and distribution of non-subsidised fertiliser in areas where subsidised fertiliser is not available, either in the right quantity or at the right time;
- **Financial institutions** providing accessible and affordable in-kind loans to poor maize farmers, therefore they are able to have the adequate capital to obtain best quality inputs and access to post-harvesting services; and
- **The private sector** improving irrigation facilities and management.

The PRISMA approach

To achieve its vision, PRISMA plans to collaborate with private sector partners and support to:

- Improve access to GAP and promote its use. This includes the use of appropriate quality seed, maintenance and technology.
- Improve access to fertiliser and promote its use by strengthening distribution of non-subsidised fertiliser.
- Promote low cost, household-level storage techniques among the target farmers, raising awareness of the benefit of selling the maize over a longer period of time.
- Develop improved access for maize farmers to a proper irrigation system and the technology needed for dryland cultivation to give the farmers the ability to plant maize in the dry season.

Progress status

PRISMA is planning to collaborate with a hybrid seed company PT. BISI International a local maize trader, PT. Citra Megah Manunggal, and a fertilizer company PT. Hextar Indonesia. This collaboration is set to achieve better access to quality seeds, herbicides, and pesticides, as well as an end market for the farmers. This intervention will also improve access to an in-kind loan to farmers, to increase financial inclusion as well as financial literacy for farmers.

15. MAIZE, NTT

Maize is one of Indonesia's primary food crops. Across the country, almost 20 million MT are grown each year on three to four million ha of farmland; almost half is used to cater to the ever-increasing demand for animal feed. It is a seasonal crop, with a surplus during peak harvest months and a severe undersupply the rest of the year. PRISMA has identified a clear opportunity to increase maize production, productivity and quality as part of Indonesia's drive towards import substitution.

In NTT province, maize is the staple food of the majority of the population, and one of the local farmers' most popular crops. Despite its importance however, maize cultivation is characterized by low input, low output subsistence farming practices. This low productivity, which consistently fails to meet mainly for local consumption, is largely caused by the limited access to improved seeds as well as use of extension services, which are insufficiently technically equipped to assist farmers. Most farmers in NTT plant their crop during the wet season on dry farmland; only a small number have the capacity to irrigate their land during the dry season. Poor post-harvest handling and lack of storage facilities adds to the problem of production loss.

PRISMA, through the Australia-Indonesia Partnership for Rural Economic Development (AIP-Rural) saw an opportunity to improve maize productivity at farm level by encouraging the use of GAP. Since 2011, AIP-Rural has supported food security in NTT by boosting the productivity of maize; by the end of 2011 it had increased by more than 35%. AIP-Rural had achieved this by increasing farmer access to an improved variety of maize seed and technical knowhow. There is thus a clear opportunity to promote the viability of maize cultivation as

a business for farmers through increasing the demand for quality seed, alongside embedded services that promotes GAP.

Challenges and constraints

Maize farmers in NTT find it difficult to increase their income for two following reasons:

- **Limited knowledge of GAP**. Farmers practice subsistence farming on a small amount of land (usually half a ha or less). This produces insufficient maize to feed the household, partly because of low yielding variety crop management practices and substantial post-harvest loss due to pest attack.
- **Recycling of seed from the previous harvest**. Most farmers in NTT do this, a practice which eventually reduces yields.
- **Limited supply of good quality seed**. High yielding maize seed such as OPV or hybrid variety is difficult to obtain by farmers. The supply of OPV and hybrid seed through government subsidy cannot meet the need for quality seed in NTT.

Vision of change

PRISMAs vision of change is that by 2018, maize farmers in NTT will be using an improved variety of maize which will increase their production volume and productivity, enabling them to supply their consumption needs as well as the local market. Moving out of subsistence farming means they will generate more revenue through sales of increased production of their crop, attracting more farmers to use better inputs and GAP. This vision is being achieved by:

- **Input suppliers** increasing their supply of improved quality seed available in more consumer-friendly packaging, and retailers advertising and distributing it at a fair, affordable price.

The PRISMA approach

To achieve its vision, PRISMA is collaborating with the private sector to:

Promote the use of improved seed (composite or open pollinated varieties, as well as hybrid seed)

- Work with local seed producers to improve the sustainability and outreach of the business model. This will include building the management capacity of seed producers, conducting an area mapping, establishing a “Champion Jagung” club, and developing an effective marketing program.
- Continue support to existing partners (e.g. expanding their private distribution network to Flores); consider the potential to support additional intervention partners, particularly in Sumba and Flores.

Introduce affordable commercial fertilisers

- The ultimate goal is to ensure the availability and use of fertiliser, which is essential for maximizing yields from hybrid seed and can also improve yields from composite seed. There is potential to work with fertiliser companies and agro-input dealers to develop fertiliser products and private distribution channels to target smallholder farmers.
- The supply of subsidized fertiliser is insufficient, and delays in the government distribution scheme often mean that it arrives at the wrong time, providing opportunities for private sector involvement.

Introduce more effective, affordable farm-level storage solutions

- This will help reduce losses once farmers have increased productivity and are growing more composite and hybrid seed. PRISMA is working through YIPD as a co-facilitator to develop this strategy.
- Work with manufacturers, distributors, and traders of storage equipment to develop alternative, cost-effective storage solutions. In 2016, this will involve the commercialisation of airtight containers based on market incentives.

Progress status

- PRISMA has signed a contract with four seed producers in West Timor in 2015. Another local nursery, Tunas Harapan has signed contract with PRISMA in 2016.
- Partner adapted the business model to produce, and promote maize seeds via their distributors, retailers, and Champion Jagung; and hire agronomist to ensure production of quality seeds.
- Outside the business model, partner is also producing more seeds, investing more in promoting OPV maize seeds, and hiring agronomist.
- Over 21 MT of OPV seed were sold in 2016 planting season, including Lamuru (the most suitable), Srikandi Putih and Srikandi Kuning. Some additional seed has also been sold in Flores. Sales of OPV seed from partners has been increasing to 37 MT during the 2017 planting season.
- Following the 2015-2016 pilot in promoting OPV seed in West Timor, two partners decided not to continue the business model due to a lack of human resource capacity in managing sales in a free market. Hence, they continue to supply OPV seed for government seed subsidy procurement (NTT government has a supply gap of 600 MT OPV seed).
- In 2015-16, the region is witnessing the most severe case of El Nino for 23 years. This has negatively affected seed sales, and delays to the rains have led to a shift in the planting season and farmers' choice of crop. This delay has also been favourable to the distribution of government subsidized seed, which has also negatively impacted the market development progress of PRISMA's partners.
- Despite roadblocks such as these, the business model has been deemed plausible by other two partners and there are interested parties in West Timor, Flores and Sumba who wish to expand their markets. In addition, one of the hybrid seed producers, PT BISI International, is interested to expand their market to NTT by promoting hybrid seed and other agro-input products.

Contributions of other publicly funded programs/private contributions

The GoI is providing extension services and is involved in the distribution of OPV of composite maize seed and hybrid seed to farmers, which may affect PRISMA's intervention to deploy a business model for seed sales to a free market. Nevertheless, PRISMA's impact assessment will ensure that the actual impact of the intervention is calculated, and not overlapped with any impact attributable to the government initiative.

16. MANGO NTB AND EJ

Mango is the third most widely grown fruit in the tropics and sub-tropics after watermelon and banana. Global production of mango has been increasing, with growth largely driven by favourable demand conditions in producing countries. Between 2003 and 2013, global production of mango, mangosteen, and guava increased from 29.7 to 43.3 million MT and grew at a compound annual growth rate (CAGR) of 4%. While data from the FAO does not disaggregate among these commodities, the latter two crops have residual importance in terms of production. Representing over 40% of global production, India is the world's leading mango producer, followed by China and Thailand.

Mexico has been the leading mango exporter for decades while the US is the leading importer of mangoes. The EU and Gulf States are potential markets for mangoes from Indonesia. In East and Southeast Asia, five countries – Malaysia, Hong Kong, Singapore, Laos, and Japan – account for the bulk of imports. Despite strong growth in the international mango trade, over 95% of the world's harvest is still consumed within the producing country itself.

Mango season differs across countries. Based on ACIAR research on mango, it is common for countries in southern hemisphere to harvest in the end of the year, while countries in northern hemisphere normally harvest at the middle of the year.

Indonesia is the fourth largest mango producer globally, with approximately 2.4 million MT of mangoes in 2014; the country accounts for 3 to 5% of global production, depending on the year. Mango is Indonesia's second largest fruit crop after banana. In line with global trends, mango production in Indonesia has also been increasing at a CAGR of 4% over the past decade.

East Java province dominates the Indonesian mango sector. The province produces more than 900,000 MT a year, around 38% of the national annual supply. West Nusa Tenggara (Nusa Tenggara Barat, or NTB) is one of Indonesia's smaller mango producing areas, contributing only a fraction of the amount supplied by East Java, producing about 100,000 MT per year. This amount was sufficient to put NTB on the 5th rank in terms of national mango production. Here, mango farmers are typically poorer, and have fewer crops and fewer income options than farmers in East Java. In both provinces, farmers typically sell their mangoes from the tree either at harvest time or prior to the harvest. Taking example of North Lombok district, mangoes are sold for cash, but on an ad hoc basis rather than being managed as a commercial crop.

A value chain study shows that in both East Java and NTB, the low peak-season price (IDR2,000-2,500/kg) is a major disincentive for smallholder mango farmers to consider investing in the new technology which would make their business more productive at other times of the year. Instead, they leave their mango trees to bear fruit naturally or rent them out to collectors to manage. From renting out, farmers receive guaranteed stable income that is paid upfront. Renting period can vary between 1-3 years for most farmers.

In the off-season, however, the average on-farm price of mangoes can be more than 5 times higher than the price stated above. This means that if half their crop can be sold during the off-season months, the farmer's income from mango will increase by more than 80%. The crop treatment technology, which is designed to help deliver an early harvest and thus obtain higher prices, is intended to be accessible by 700,000 farmers in East Java and around 45,000 farmers in NTB. There is clearly an opportunity for PRISMA to tap into the possibility of shifting about 50% of the total mango production to an earlier harvest time, enabling smallholder farmers to get a better price for their production during the months which are currently off-season.

Challenges and constraints

The three key problems currently constraining smallholder mango farmers in East Java and NTB from taking advantage of this market opportunity are:

- **Lack of access to early flowering technology and alternative end markets**. Chemical companies see mango farming as a market with low potential, and do not actively promote the use of the right combination of chemicals for off-season mango production, or provide embedded services to assist farmers with successful application of such technologies. The export sector is largely underdeveloped; the processing industry is also in its infancy.
- **Farmers are reluctant to invest in the mango crop** because of the low prices they currently get in the peak season; they are generally smallholders, their production is low, and they generally follow a low investment, low return model. Farmers are also not willing to let go of income from renting out trees, and taking on the risks of cultivation.
- **Farmers also experience low productivity when they manage their own trees** because they lack access to GAP, particularly in terms of pest and disease management. Losses from pest and disease attacks can be significant, making mango farming even less attractive.
- **Potential risks outweigh potential benefits** because recent weather conditions are not favourable to mango farmers, and thus harvest failure is an imminent risk.

Vision of change

PRISMA's vision of change is to increase smallholder productivity and prices received in both the peak and off-season for mangoes, but with an initial focus on off-season production. At the service level, it is envisaged that farmers will have improved access to: (1) crop manipulation technology, (2) export and processing services, and (3) information and extension services. To realise this vision, this report recommends focusing on three intervention areas:

- Increase production in the off-season
- Promote alternative end markets in the peak season
- Introduce better practices and more effective and affordable pest and disease management

We envision that crop manipulation technology and information and extension services will be provided through chemical companies and collectors. Export and processing services may potentially be developed through traders and existing or new processing enterprises.

The PRISMA approach

To achieve its vision, PRISMA is collaborating with the private sector, PT Syngenta Indonesia (Syngenta) and PT Rainbow Agrosciences (Rainbow) to:

- **Scaling up early flowering technology**. PRISMA partners Syngenta and Rainbow are working to identify collectors and lead farmers who would:
  - Promote early flowering agrochemicals (marketed by Syngenta as Cultar (*paclobutrazol*), Amistartop (fungicide), Actara (insecticide); by Rainbow as Pazole (*paclobutrazol*), Fivestar and Raincozeb (fungicide), and Puntoxtra and Nanofos (insecticide);
  - Demonstrate the application and impacts of the agrochemicals through key events (such as expos and farmers' field days or field trips), and
  - Learn more about early flowering technology in order to disseminate the knowledge and skill to the farmers within their network to ensure the use of the technology.
  - Expanding product promotion to other crops, making it more attractive for partners.
- **Identify and invite mango farmers** to attend early flowering technology training and promotional activities. Since many mango farmers have never heard of the technology, or have prior misconceptions, attending a training will give them a better idea of early flowering and its benefit.
- **Identify locations suitable for farmer meetings** so that more farmers can understand the benefit of the technology. This is built upon the success of the pilot program which showed that demonstration increases the sales of the chemicals.
- **Train partners' staff to enhance their capacity** to prepare and run the mango demonstration plots. The need for training will be assessed based on the experience of the pilot demonstrations and the capacity of each partner.
- **Conduct a social marketing campaign** under the umbrella of PISAgro as a committee to stimulate demand for the technology and the necessary chemicals provided by the partners and other market actors. This committee is assisted by PT Edelman Indonesia as the marketing agency in designing and implementing the campaign.

Progress and signs of systemic change

- Since beginning work with PRISMA, Syngenta has started to re-import Cultar and has steadily increased its sales volume from one MT in 2014 to two MT in 2015.
- Syngenta has also started to promote the application of early flowering technology for other fruit crops. In 2015 it organised an expo in Banyuwangi, East Java to promote the technology for dragon fruit. The company invited two hundred farmers, and managed and funded the event independently.
- In late November and early December 2015, NTB's government agriculture office held two training events for mango farmers in Lombok and Sumbawa, inviting a Syngenta representative to attend as the expert resource. On January 2016, the district government of North Lombok held a similar activity, inviting around 50 participants.
- On May 2016, NTB's government agriculture office held a training event inviting representatives from agriculture office from each districts in NTB, accompanied by farmers from each districts.
- Rainbow has also started to promote paclobutrazol for other crops such as shallot, and have plans to target potato, carrot, rice, dragon fruit, orange, durian, and maize.

Contribution of public programs

There has been no significant contribution by public programs. Nonetheless, provincial and district level governments in East Java and NTB have been showing interest in being involved in promoting early flowering technology.

17. MUNG BEAN EJ, NTT & NTB

Mung bean is grown mainly in South and Southeast Asia; its cultivation has also expanded into Australia, USA, Canada and Ethiopia. In Asia, its production increased from 2.3 million MT in 1985 to 3.1 million MTs in 2000. China is the largest exporter of mung bean in the world, followed by Myanmar, while India is the largest importer. Global demand for mung bean remains consistently high and stable.

Demand for mung bean in Indonesia is largely met by domestic production, and although it experienced a dramatic decline in 2012, the production level recovered in 2014. This results in persistent increase in imports in 2013 to cater for the food processing industry which dominates domestic demand, and a slight drop in imports in the following year. Availability of mung bean-based food products has increased significantly in recent years and its market price in Indonesia has remained relatively stable.

East Java is Indonesia's second largest producer of mung bean; together with the largest producer, Central Java, the province accounted for 61% of Indonesia's total production of mung bean in 2015. East Java has around 200,000 mung bean farmers, roughly half of whom are in Madura, while the rest are spread throughout 30 or more districts. Since 2005, mung bean production and its cultivation area has decreased in East Java, although productivity has increased.

Mung bean is rich in easily digestible protein and other nutrients. It adds nitrogen to the soil, requires less water and has a short crop duration, and is therefore is widely used in crop rotation. It remains particularly relevant to the poor in terms of both income and nutrition. It is cultivated as an attainable interval cash crop in the dry season due to its low maintenance and production costs. Poor farmers in EJ have the potential to increase mung bean productivity without significantly raising production costs. There is viable scope for import substitution, due to escalating domestic and international demand coupled with the rising sale prices witnessed over the last years.

PRISMA has identified a clear opportunity to increase mung beans production, productivity and quality through commercializing quality mung beans seed. PRISMA focuses on the provinces in Eastern Indonesia i.e., East Java, East Nusa Tenggara, and West Nusa Tenggara because – (a) there is high growth potential (b) farmers in these areas do not have access to good quality seed, and (c) private companies focus in these areas.

Challenges and constraints

The major challenge to mung bean farmers in East Java, East Nusa Tenggara, and West Nusa Tengara is low productivity, and the underlying causes for this are:

- **Lack of use of appropriate quality and quantity of inputs**. Minimising cost and effort dominates the farmers' cultivation methods.
- **Lack of commercial production and distribution of quality mung bean seed**. Seed producers are reluctant to instigate production as they are not assured of demand and profit.
- **Farmer reliance on residual fertiliser present in the soil** from previous crops. Fungicide, herbicide and pesticide are widely available in the market, but are not targeted to mung bean production.
- **Lack of information about better cultivation practices**, improved seed and inputs, and the overall potential of mung bean as a more profitable cash crop. No information is actively supplied by any actor in the market.
- **Lack of information on better market prices** (e.g. export market)
- **Mung bean is not considered a nationally important crop according to the government development strategy**. As a result, extension services – which are functioning with limited knowledge and resources – do not focus on mung bean. Nevertheless, there is some growing interest from the government as seen from several local government mung bean seed subsidy programs.

Vision of change

PRISMA's vision of change is to increase the income of mung bean farmers in East Java by improving the quality and productivity of their crop. It is essential to ensure the availability and usage of appropriate inputs and proper cultivation techniques, which can be achieved by, at the service level:

- **Seed industry actors** supplying quality mung bean seed and embedded services, to educate farmers about better cultivation practices;
- **Fertiliser and pesticide companies** promoting better cultivation practices and proper usage of their inputs to farmers;
- **Market linkages** between mung bean buyers and exporters.**Government is improving its support** for mung bean farmers especially in the form of capacity building of extension service officers.

The PRISMA approach

To achieve this vision, PRISMA plans to collaborate with public and private sector partners to:

Assist seed producers and suppliers to produce, distribute, and promote quality mung bean seed

- Assist local seed producers and a large seed company to assess the untapped market potential of mung bean seed.
- Assist them to expand their existing seed production.
- Facilitate the distribution and promotion of mung bean seed through input retailers and suitable distribution agents.
- Promote embedded information services alongside the sale of seed.
- At a later stage, replicate this model with other seed producers and retailers.
- Start negotiating with other large seed companies for future scale-up of the model.

Assist fertiliser and pesticide companies to promote the application of fertiliser (particularly micronutrients and compost), appropriate pest control solutions, and better farming practices

- Work with fertiliser and pesticide companies to develop a business model targeting mung bean farmers, who are large in number but yet to be considered as clients of the companies.
- Pilot the model with at least one company, stimulating the use of micronutrient fertiliser, compost and pest control solutions appropriate for mung bean.
- The partner will disseminate knowledge on better cultivation practices to mung bean farmers through distribution agents and demonstrations.
- Scale up the intervention by expanding to work with additional partners.

Assist local agro-tool producers to promote sowing tools appropriate for mung bean

- Promoting improved cultivation practices, including facilitating the production and promotion of sowing tools for mung bean with local agro-tool producers. Such basic tools, along with simple changes in cultivation practices, can make significant improvements in yield.
- Scale up the intervention by working with additional agro-tool producers.

Assist public extension agencies to promote existing, successful extension model to other districts

- Work with provincial and district level public agencies to replicate the existing public extension service model, which successfully targets mung bean farmers in the Sidoarjo district, East Java.
- Try to facilitate a system where provincial government funds and guides district agencies to replicate the model.
- Assist district agencies to implement the model better.
- Facilitate market linkages between buyers, traders and farmers.

Progress status and signs of systemic change

- Private seed company PT East West Seed Indonesia is currently conducting mung beans seed trials and licensing administration process as a step before producing and distributing the seeds to farmers.
- CV. Semi Purwodadi (Central Java) as a seed producer has signed a contract with PRISMA to produce and distribute quality mung bean seed in East Java.
- PT. Novelvar Indonesia, an agro-chemical company has shown a clear interest in signing a contract with PRISMA to promote organic fertilizer and pesticides for farmers in East Java.
- PRISMA is also assessing mung beans off-takers to ensure farmers get a better price.

Contribution of public programs

None; mung bean is not a prioritized commodity.

18. PEANUT, EJ

Indonesia is the fifth largest peanut producing country in the world. Its population, however, consumes more than it can produce, leaving a shortfall of around seven hundred thousand MTs every year. Indonesia is the largest importer of Peanut. From 2010 to 2014, peanut imports into Indonesia grew steadily by 7.7% while . Its usefulness is very diverse, led to the demand of peanuts continues to increase each year. A clear business opportunity exists therefore, to increase the production volume and the quality of the peanut crop, thus helping to reduce imports. Indonesia produces around 650,000 MTs of peanuts every year. Java Island is the centre of production and East Java the highest contributing province, supplying 30% of total national production. Despite this, local producers are still unable to meet the needs of domestic households (10%), home industry (80%) and large-scale food manufactures (10%).

East Java is home to around 420,000 peanut farmers. Bangkalan, Sampang, Sumenep, Tuban, Pamekasan, Pacitan, Magetan, Bojonegoro, Ngawi and Ponorogo are the ten highest concentration. Here, the farmers use impure local seed variety or retained seed, which produces a poor yield and lower quality; at the same time they have little access to information on other quality inputs. On average, the farmers use seeds from the rest of previous harvest, both from inventory kept themselves or purchased from local collectors (traders). Although Balitkabi (the Indonesian Legumes and Tuber Crop Research Center) has developed and released some varieties of better quality peanut seed, there are few nurseries able to produce it in quantities large enough to be commercially accessible. The nurseries which do, do so to provide a small quantity for free distribution by the government. The excellence of peanut seeds produced by certified nursery is that the certified quality seeds has been tested by certification bodies who monitor the seed quality, where the use of these high-quality seeds will increase the productivity of farmers.

PRISMA has chosen Ngawi, Pacitan, Magetan, and Ponorogo as target areas because of (1) the large numbers of peanut farmers in these districts, (2) the high growth potential, and (3) high willingness of an-agro input partner to enter the market.

Challenges and constraints

Peanut farmers in East Java are currently unable to increase production for the following reasons:

- **Low quality and low productivity**. East Java's peanut farmers are unable to access high quality or improved varieties of seed. Instead they are dependent on local, retained and impure seed which produces suboptimal yields. The low quality and quantity of their crop hinders them from selling their harvest to the big buyers.
- **Minimum usage of quality inputs**. Farmers in East Java suffer from rat infestation and other pests and diseases on their farms due to the minimum usage of high quality agri-inputs.
- **Lack of stable production**. Peanut farmers only cultivate in the rainy season. Lack of irrigation, good storage facilities, and access to peanut varieties resistant to fungi, hinder them from building the capability to supply big buyers.

- **Lack of knowledge on how to sort retained seed.** The farmers have a lack of knowledge on how to handle, sort and select the previous seed to be used during the next planting session.
- **Limited number of nursery who able to produce certified quality seed**. The demand for certified peanut seed from farmers is much lower than demand for other seed. The certification expiry date is too short to give farmers enough of an opportunity to sell the seed. At the same time, Garuda, a producer of peanuts for consumption, already owns a patent for its peanut seed implemented by its captive farmers. These constraints have led to a reluctance by nurseries to develop a peanut seed business.
- **Limited practice of GAP**. If well-managed, peanut productivity can reach two to three MT per hectare of dry peanuts. One of the constraints leading to optimal results not being achieved by farmers is that they frequently tend not to fully adopt improved cultivation techniques.
- **Lack of knowledge about market standards**. Most farmers in East Java do not know about the standard preferred by the market, particularly industrial markets.
- **Limited knowledge of good post-harvest handling practices**. Peanut traders have to ship their crop to food processing companies within forty-eight hours of harvest to avoid the risk of spoilage by Aflatoxin (a naturally-occurring carcinogenic toxin which can develop in warm, damp storage conditions.

To overcome these challenges and constraints, PRISMA has cooperated with private partner Novelvar, an agri-input company that has soil rejuvenation and plant protection products that have been proven to significantly increase farmers' productivity. The intervention will also be a cross-sector one, involving mung bean and soy bean farmers as the targeted beneficiaries. The team has also planned to facilitate Balitkabi in meeting the local nurseries' demands, therefore increasing the availability of high quality peanut seeds to farmers in East Java.

Vision of change

PRISMA's vision of change is that by 2018, farmers in East Java will have improved their productivity and be producing higher quality peanut to supply the domestic home industry, households, food processing companies, and the export market. They will get a better return for their crop as a result of this increase in quality, and this will attract more traders and suppliers to source from local farmers. Thus, domestic production will increase, helping Indonesia to reduce its dependency on imports. This vision can be achieved in a number of ways:

- **Collaborating with agro-input companies to** provide access, marketing and selling activities to promote good quality plant supplements and pesticides aimed at convincing peanut farmers to adopt and improve their understanding of the need for proper GAP.
- **Collaborating with Balitkabi and a number of nurseries** to ensure the quality and supply of peanut seeds across the nurseries in East Java.

The PRISMA approach

To achieve this vision, PRISMA will collaborate with private sector partners to:

Promote good quality seed

- Private sector partner replicates the new improved variety of peanut for commercial use.
- Expand the distribution channel to reach a great number of farmers.

Promote high quality agro-input products

- Private sector partners promote productivity-enhancing products for peanut cultivation
- Expand the distribution channel to reach a great number of farmers.

Improve GAP and GHP among farmers

- Develop a marketing and promotional strategy for use by agro-input companies.

- Develop a set of activity plans to educate peanut farmers about GAP and promote its use.
- Input companies provide these embedded services along with the products they sell.

Contributions of other publicly funded programs

The GoI has a free seed distribution program; these are given out in small quantities but nevertheless may affect the impact of PRISMA's interventions.

19. PEANUT NTT[33]

Between 2009 and 2013 annual global consumption of peanuts increased from 31.03 million MT to 35.99 million MT (by 15.98%). Global annual peanut production ranged between 30.76 and 39.83 million MT during 2004-2014. China is the leading peanut producer, contributing 37%% of world supply; India contributed 14%; and USA, Nigeria, and Indonesia collectively contributed 18% in 2014. World export of peanuts, on average, was around 4.48% of the total global production during 2004-2013.

Indonesia is currently ranked fifth among global peanut producers. However, the country's productivity remains consistently low compared to other peanut producing nations, and between 2009-13 acreage and yields have shown a downward trend. With a generally consistent increase in national demand and availability of cheap imported peanuts, Indonesia remains the largest importer of peanuts in the world, due to the highest growth of import in the world from 2004-2013. Unmet domestic demand, expected growth in future demand, coupled with rising prices for local peanuts, create strong growth potential for the peanut sub-sector.

Although NTT is the sixth largest peanut producing province in Indonesia, it lags far behind the top four provinces which are all in Java. Here, productivity, at 0.87 MT per ha, is below the national average of 1.33 MT per ha; peanut production and acreage however have steadily increased, contrary to the national trend of decreasing production and area cultivated, regardless of the significance decrease in terms of acreage and yield of peanut production in 2015. In 2015, NTT produced 10,620 MT of peanut, of which 10% were exported to other islands in the archipelago.

NTT's peanut is produced in Flores, Sumba and Timor. Timor has the largest production base spread over four districts. Significant imports have occurred during periods of lean production, such as 2011 when up to 8,000 MTs were imported into the province.

Many poor farmers are involved in peanut cultivation in NTT. Climatic conditions here make peanut a suitable crop. There is immense scope for improving productivity and quality by introducing quality seed, improving production and post-harvest practices, and increasing the number of buyers. Peanut in NTT thus has potential to reduce poverty, substitute imports, and increase exports to other provinces and countries.

Challenges and constraints

The overarching problem with the peanut sub-sector in NTT is its low competitiveness. This stems from relatively low productivity and production, which does not attract traders to rely on the domestic supply. The specific problems and their underlying causes are summarised below.

- Farmers do not apply good farming practices (in terms of seed selection, land preparation, planting and maintenance); in general, farmers lack access to information on better farming practises.
- Farmers use retained seed, as there is no commercial business to multiply and distribute good quality seed in NTT. Seed producers in other provinces have no established networks, stable water supply, or knowledge of NTT to motivate them to promote peanut seed.
- Farmers do not apply good post-harvest technology (especially drying technology) and this restricts them from improving the quality of their produce and storing them for long periods. As peanut is not yet a highly commercial crop, no commercial provider has been motivated to address this information and service gap. The collectors and inter-island traders lack capacity to provide information about post-harvest techniques and drying. Inferior quality pulls down the price further. As well as dry processing,

[33] Interventions in this subsector are being co-managed by YMTM (Yayasan Mitra Tani Mandiri) as PRISMA's co-facilitator.

the traditional threshing methodology also adversely affects the harvesting time; due to lack of labour, farmers often leave their crop too long and allow the peanuts to sprout in the ground. This reduces yields and contributes to a decrease in the farmer' income.

- Farmers often do not have enough capital to buy and use better inputs and tools. Their financial literacy is often limited, meaning they are unable to make use of the financial services available.
- Farmers also plant peanuts for their subsistence needs, not focusing production on gaining profit. Thus, productivity is not essential for them.
- The government extension service has limited resources and capacity; it therefore tends to focus on other priority sectors and is unable to meet the needs of the peanut farmers.
- Private input companies do not see peanut farmers as major clients, and lack the capacity and vision to expand their client base.
- Local Seed Supervision and Certification Agency (BPSB) has limited capacity and experience on technical skills in peanut.

Vision of change

PRISMA's vision of change is that by 2018, peanut farmers in NTT will have increased income; this will be achieved through increased production, productivity and market access. At the service level, this can be achieved by ensuring:

- Availability of quality seed and other inputs;
- Functional provision of appropriate agricultural and handling practices

The PRISMA approach

To achieve this vision, PRISMA is considering collaborating with private sector partners to implement the following:

Facilitate availability and usage of good quality seed through provincial seed producers in NTT

- Work with the existing breeders (and following a successful trial introduce new seed breeders) to start producing and promoting peanut seed, while at the same time introducing better varieties.
- Seed breeders provide farmers with information on more efficient production techniques.
- Seed breeders cooperate with female empowerment groups, village-owned enterprise, retailers in the market and agents in the villages to ensure effective seed and GAP information distribution to farmers.

Facilitate direct linkage between large traders and farmers for better market linkage and better flow of information on post-harvesting processes and quality requirements

- Motivate large-scale traders and buyers to make direct investment in NTT (for example, opening a branch, having representatives in NTT).
- Buyers provide support to farmers to enable better post-harvest practices.
- Large-scale traders cooperate with district wholesalers and traders, creating an incentive for them to provide services to the farmers.

Progress status and signs of systemic change

PRISMA has started to implement intervention 1: 'Facilitate availability and usage of good quality seed through provincial seed producers in NTT'. The following points capture the progress status of the intervention.

- The main highlights and achievements since then are:
  - Private partner TPM has sold more than 11 MT of quality seeds to farmers.
  - Peanut experts trained a primary service provider and 49 farmers in better seed cultivation.
  - TPM sold the first batch of packaged Hypoma 2 seed in mid-December 2015.

- In mid-2016 and early 2017, the intervention has scaled up to other areas by including an additional two partners, which are CV. Sinar Tunbeis Makmur (STM) and CV. Anjas, in Kupang and Nagekeo Districts, respectively.
- An impact assessment was conducted one year in to the intervention. The result captures farmers having increased peanut production and signs of systemic change.

- Challenges encountered during the first few months of implementation are:
  - Harvesting costs turned out to be somewhat high due to the higher than predicted cost of labour; this had increased exponentially because of the strong demand for labour for planting other crops (i.e. maize). This challenge has been addressed by the introduction of simple harvesting technique introduced by the peanut expert, Agustina. Farmers now have the knowledge of a more efficient peanut threshing process, using only a banana trunk.
  - The certification process by BPSP NTT has taken longer than expected, as they have limited skills and technical knowledge on NTT. This could affect the timely delivery of seed to retailers and farmers.
  - A long period of drought caused by El Nino adversely affected peanut production, harming the yield in several demo/production plots.
- Early signs of progress towards systemic change are:
  - TPM has demonstrated its commitment and buy-in to continuing with the seed production business by recruiting a new member of staff (an agronomist), solely responsible for the company's peanut seed production. It has increased the amount of land allocated to demo/production plots in the next planting session and provided additional funds to speed up the harvesting process in the demo plot area.
  - TPM has implemented seed certification independently without support from PRISMA. The Director of TPM has established communication with Balitkabi in Java for updated information about opportunity in peanut business.
  - 17 ISPs are involved in a peanut market network. The number of seed growers among the three nurseries have also expanded from 7 to 43 in June 2017.
  - Most of the farmers involved in the intervention are enthusiastic about the prospect of planting high quality peanut seed after witnessing the potential increase of yield in the demo plots.

Contribution of public programs

The NTT provincial government independently plans to buy good quality seed and distribute it to farmers. PRISMA is mindful of the potential distorting impact of this, and will take it into consideration in future assessments.

20. PIGS NTT[34]

Global consumption of pork is rising and between 2000-2014 it increased by 30%. Although a relatively small producer on the world stage, Indonesia has experienced an increase in pork production by an average of 4.5% annually since 2000, and by 2013 produced a total of 742,500 metric tons of pork. At the same time, national per capita pork consumption increased by 50% from 2 kg/capita/year to 3 kg/capita/year by 2011. Among the non-Muslim community consumption is closer to 15-17 kg/capita/year (2011). There is a growing demand from the hotel and restaurant industry for pork, as well as from provinces with non-Muslim populations.

East Nusa Tenggara (NTT) is the largest producer and consumer of pork in Indonesia where about 90% of the population of 5 million are non-Muslim and consume pork. NTT contributes to 23% of national production and in NTT 85% of household rear pigs (more than three pigs per household on average). Pigs are considered an

[34] The intervention in this subsector is being co-managed by HIVOS for pig intervention in Flores and Sumba, and SNV for pig intervention in Timor (as PRISMA's co-facilitators).

important commodity for people in NTT and around 86% is consumed for traditional and religious events. In 2014, 7.8 million pigs lived in Indonesia *(Badan Pusat Statistik Republik Indonesia, 2015a)*. The pig population in NTT was 1.7 Million in 2014 and pig meat production of NTT was around 32,000 tons *(Badan Pusat Statistik Republik Indonesia, 2015b)*. Timor (38%), Flores (34%) and Sumba (16%) are the main producers of pig in NTT.

Pigs are typically reared, slaughtered and marketed in a traditional way, leading to low productivity. Pig rearing practices are still very rudimentary as indicated by low quality breeds, low quality feed, low quality sows and boars, poor rearing/farming practices including poor pig health management and diseases treatment. Around 93% of pig rearers use poor quality local waste/agriculture products as feed; 91% know nothing about diseases like swine fever, and 65% have never had extension or veterinarians visit their farm.

This leads to slow Average Daily Gain (ADG), low market weight, high pig mortality particularly piglets, and marginal income potential. But, better rearing practices are relatively straightforward and returns can be realized quickly, in addition, it is not seasonal. Therefore, there is a clear business opportunity to increase the speed and volume of pig production and productivity while at the same time shifting from traditional to modern and commercial pig breeding and fattening practices.

Women play a large role in rearing pigs. All family members are involved in pig rearing, but women play a major role with responsibilities including collecting fodder, feeding, cleaning the pen and control the health of pig. Gender focus group discussions were held in the pig sub-sector in Flores and Timor in 2015 and 2016 respectively. The findings were used to adjust the strategy by making trainings more female inclusive through the timing and location of the trainings as well as making the training materials more “female-centric”.

PRISMA has chosen Flores Island, Sumba Island and Timor Island within NTT province as its target locations because here (1) there is scope for pig business development, (2) pig rearing is commonplace but investments are limited, and (3) pig farmers here have limited access to high quality feed, improved piglets, pharmaceuticals and vet services, and modern pig rearing/farming practices.

There is an additional interest for PRISMA to work in NTT due to the high rate of poverty - the Gross Domestic Product (GDP per capita) of NTT is $400 versus national average of $3,000 and the Human Development Index is ranked 31 out of 34 provinces in Indonesia; high female involvement in pig farming where women spend hours collecting fodder, cooking fodder for pigs, and cleaning pen of pigs; and pigs are considered as valuable assets for poor smallholders where 70% keep pigs for extra income of household.

Challenges and constraints

The two main reasons pig farmers in NTT are not able to increase production can be attributed to:

- **Lack of access to good quality feed, vet services, and improved breeds/piglets**. This limits pig growth and performance. Low quality feed and breeds/piglets, increased risk of disease outbreaks and pig mortality ultimately impact the potential productivity and profitability of pig-rearing for farmers, particularly for women farmers. As a result, farmers are reluctant to invest in pig rearing activities. Government interventions do not take into account the need for high quality feed and pharmaceutical and vet services, and therefore have not been successful.
- **Traditional rearing methods**. Farmers, particularly women, lack the knowledge, skills and experience needed to breed, grow and fatten pigs commercially; the use of traditional methods means local pigs are often unhealthy, generating suboptimal weight and providing suboptimal returns.

Vision of Change

PRISMA’s vision of change is that by 2018, NTT pig farmers will be producing high quality pigs. This will attract other small farmers to scale up their production and meet the demand for pork with a larger supply of pigs, which will also be of high quality. This vision can be achieved through:

- Professional breeding farming companies providing quality piglets to farmers.

- Feed companies providing quality feed and embedded information on good rearing practices to farmers.
- Large animal pharmaceutical companies providing drugs for swine and embedded information on pig health management and disease treatments to farmers.

The PRISMA approach

To achieve this vision, PRISMA will collaborate with and support the private sector to:

Introduce improved breeds and the promotion of commercial pig rearing

- Develop a business model, which involves a pig industry technical service provider to provide technical services to piglet breeding companies.

Promote access to quality feed and pharmaceuticals, vet services, and provide information on GRPs

- Enable piglet breeding companies and the feed company to provide embedded services to shops, credit unions and traders to whom they sell or distribute their piglets or feed. These embedded services include information on good rearing practices, and the provision of good feed and medical services.
- In partnership with the feed companies, train and use distribution and other channel members (e.g. traders, input sellers, credit unions, village kiosks) to manage demo plots and conduct marketing activities to educate the farmers about GRPs and promote the use of quality feed and showcase of its commercial benefits.
- In partnership with large animal pharmaceutical companies to enter the market, supplying large animal pharmaceutical products (vitamins, drugs, disinfectants), conduct joint marketing of pharmaceuticals with feed, embedded with technical services to provide access knowledge on animal health and diseases through consultancies, trainings, coaching, and demo plots events.

Progress and signs of systemic change

Two scale up interventions of Pigs sector have been approved by DFAT from last semester to benefit more less 90,000 mostly female farmers in 17 Districts in NTT by the end of 2018. It provides an expected average annual income increase (NAI) of around 100-400% by 2018 for those who apply improved compound feed products, GRPs, and proper pig disease treatments. Currently, PRISMA is in partnership with 5 private sector pig feed players that will engage with at least 40 agents/distributors and more than 100 sub-agents/kiosks throughout the 17 participating districts in NTT.

The first scale up intervention is the expansion of the piloting pig intervention in Flores managed by Hivos. Hivos carries on where the previous intervention left off (in eight districts in Flores), expands to Sumba Island (four districts) and expands from 8 to 14 Districts in Flores and Sumba. This intervention started in June 2016. Another is the scaled-up intervention into Timor Island (5 Districts), managed by SNV, started in the last week of December 2016.

Pigs NTT, Flores and Sumba (Hivos)

- Hivos has signed partnership agreements with 4 feed players to formally work together in developing and expanding pig feed market in Flores and Sumba. In the second semester of 2016, they signed 3 deals: in October, they signed with Sierad Produce (Gunung Sewu Group, the fourth largest player in Indonesian feed industries). In November, they signed with Japfa Comfeed (the second largest feed player), and Rembu Tedeng, a local feed miller in Flores. In February 2017, the third largest feed player in Indonesia, Malindo has signed an agreement with Hivos to enter the Sumba market for the first time.
- Partnering with multiple feed companies in feed swine business in Flores and Sumba is good to make market competition healthier and stronger. However, this remains a challenge for PRISMA to manage the partnership because there are companies asking for exclusivity. PRISMA was initially working with one company in 3 districts and a competing company in another 3 districts. There was a clear geographical divide, but as the market started to grow, this division began to blur. Partners began to

get upset that other partners were meeting with what they claimed as “their distributors or agents.” At the same time, the market leader was also expressing concerns that their market share was shrinking. To manage these concerns, the team emphasized that while the program will maintain a geographic divide in their activities with each partner, it is a free market and distributors will gravitate towards the best opportunities that would allow them to satisfy their customers and increase their margins. The team reminded partners of the importance of continually servicing their relationships with distributors. The team also demonstrated to the market leader that despite a shrinking market share, the market had grown by over 10 times, leading to a 28-fold increase (from initially 8 tonnes to 232 tonnes by May 2017) in sales for the partner. This example illustrates how the team managed concerns that can arise when working with competing partners and how in some cases it may be necessary to gently remind partners of basic business principles.

- Signs of hog cholera outbreaks and animal diseases spread across the province, particularly in Flores. Before, the island of Flores had the advantage of being free of common swine fever, or Hog Cholera. This makes Flores an excellent source of disease-free pigs for other islands. But in this semester, it is suspected there are signs of hog cholera outbreak in a few districts in Flores. To respond to these concerns and prevent the expansion of a more severe outbreak on the island, the team brokered alliances between Sierad Produce (pig feed company) and Medion (pharmaceutical company – holding the largest market share for poultry and large animal pharmaceutical in Indonesia) so that they can collaborate and synergize in jointly marketing feed and veterinary drugs to the pig sector thorough market storms, demplot events, trainings and coaching. The team formulated several suggestions for Medion to enter the NTT swine market such as putting safety-warning labels on disinfectant products, producing smaller packets, designing farmer market promotion and education kits, provide a weight chart and table to measure the pigs’ weight, and promote products through SMS blasts and establish a call center or local representative in NTT. As farmers raise more pigs, there are increased risks of disease outbreaks and pig mortality. This, in turn, can negatively impact the demand for feed. As a result, it is in the interest of feed companies to encourage their agents to also stock pharmaceuticals. This has resulted the first collaboration of both companies on a joint training in Ende hosted by Sierad, where Medion sent their vet to train the distribution channels of Sierad (agents, sub-agents and lead farmers) on pigs’ health management, disease treatments and technical knowledge know-how on drug products for swine. Medion has plans to copy the model in Timor and partner with PRISMA in the cattle drugs market in East Java, NTB, and NTT. A draft MoU has been sent to Medion and is currently being reviewed by the company’s legal team with a signing expected in August.
- This semester PRISMA introduced a unique push marketing strategy called “market storms” – changing market channels from shops and kiosk to deliver goods and disseminate information to the wider rural and even urban population. The “market storms” activity provided an opportunity for representatives of the feed companies, their agents and sub-agents to observe the market’s interest in their products, attracting more sales, educating large farmers in a more efficient way, and widening and enhancing the company’s brand. They set up a point of selling and made intensive promotions at traditional weekly markets using various attractive methods. Here, the feed companies are supporting their feed retailers and kiosk village promoters, particularly in providing promotional materials, vet consultations, and strategies to help boost the sales of their feed distributors. Furthermore, several distributors have taken the initiative to hire their own vets, which is also proven to be a strong crowd-puller. Up to now, in NTT (Flores, Sumba and Timor island), there are 5 feed companies adopting this market storms strategy, around more than 80 market storms activities have been made in 30 locations, and more than 50% of the feed buyers at market storms are female. After seeing the success of the market storms, feed companies and their agents are motivated to partner with more sub-agents, to cover more markets, invest and cost-share in transport and marketing, and modify packaging to better suite farmer needs. Sierad Produce has recruited 1 more full time marketing personnel for Flores and Sumba, and has plans to hire 1 more for Timor, and outsource more than 15 salesmen that work on sale-based incentives to support market storms activities throughout NTT. Japfa Comfeed has recruited 1 full time vet for Flores and Sumba, and Malindo assigned 1 vet for Sumba.

- To support market storms, the team developed an online google map of all weekly markets in NTT for partners to use in identifying locations to target when planning their marketing strategies. The information in the map includes the precise location of the markets, the contact details of relevant authorities and the approximate size of the market based on the number of regular traders and the size of the local population.
- New feed producers have crowded in:
  - CV Maju Jaya, a local, small-sized feed producer in Tambolaka, Southwest Sumba has started to produce pig feed product for sale to pig farmers locally, at a cheaper, more affordable price than that of other feed companies (6,000-7,000/kg compared to 9,000-10,000/kg). The producer has approached Hivos to discuss possible scope for collaboration in developing the feed and piglets market in Sumba. Prior entering into the feed market in this semester, this company was a local pig breeder, running the breeding business for more than 5 years that produces and sells around 300-500 piglets per annum to market in Sumba.
- More feed actors and its distribution channels are being developed:
  - The number of feed companies have increased from five to nine, agents have increased to 40, and over 90 sub-agents, where before there were none.
- PRISMA identified 24 families living with disabilities in Flores and Sumba, selecting 15 to collaborate with, and identified 3 local NGOs that will provide disability awareness training and resources to feed company marketing staff, distributors, retailers, village promoters, and Hivos staff; these NGOs will also provide advice on developing training curricula and survey tools for disability related impact assessments.
- PRISMA continued with the introduction of a technology and consulting service provider to assist with the capacity building of piglet breeder companies; so far, nine pig breeding companies and eleven individual small-scale breeders have adopted this service and invested heavily in its facilities with the aim of improving productivity and quality.
- PRISMA and ARISA conducted a market study on pork demand in NTT. The report of the study helps the team to develop intervention plans related to pig market which is now still an underdeveloped market. The team also met with Swisscontact's WISATA tourism program to learn from their experience in developing tourism in Flores and discuss potentially working with them to grow the downstream pork market in Flores.

Pigs NTT, Timor (SNV)

- PRISMA's contract with SNV was signed on 26th December and is scheduled to run until the end of September 2018. SNV has recruited 5 personnel, which consist of 1 field coordinator, 4 field officers (spread to 4 districts), and 1 MRM.
- SNV has signed with two feed companies, Malindo on January 2017 and Sinar Terang Madani (STM) on February 2017, and a third in pipeline with Cargill. Cargill, the world's second largest feed company, has expressed a strong interest to work with PRISMA's pig intervention project in Timor, and in the cattle feed market in East Java. A draft MoU for project intervention in Timor has been sent to Cargill and is currently being reviewed by the company's legal team with a signing expected in August.
- First delivery of feed has been made by partners and distributed to 18 participating retailers in the urban and remote areas throughout 4 districts in Timor by Indonesia's Trading Company also known as PPI (Perusahaan Perdagangan Indonesia). The retailers have started selling to farmers the feed from their shop or kiosk and through their point of selling at traditional markets (market storms).
- Distribution channels being established. There are about 18 feed retailers for STM have started business partnership with STM and continues to identify potential feed retailers.
- Market storms has started. STM adopted market storms from Flores to Timor, 13 market storms activities have been made by 5 retailers in 9 locations.

- Training of 66 feed distributors and potential lead farmers have been conducted.
- 100 demo plots identified but to be "commissioned" - 13 have started using STM Feed on their own.
- In March, the team conducted a baseline study in Timor. Baseline revealed that Timor is ahead of other islands in NTT with regards to feed use and pen use, in which 23% of farmers in Timor have used improved feed and proper pen. There is a possibility of lower impact for farmers of this intervention compared to Flores & Sumba, but potential for greater demand of feed and greater consumption of pigs. As the market for feed already exists, it could be harder for new companies to break in without having something special over the incumbents. Way forward in Timor will focus on remote areas and districts where other feed brands aren't in the market and avoid competing with good feed incumbents. The new players should think of how they can use new distribution or expand distribution and marketing channels in more remote areas.
- Timor has higher pig mortality rate compared to Flores. Also, there is a room to improve pens and animal health. Way forward in Timor will facilitate an alliance between feed and pharmaceutical companies in promoting joint marketing of animal pharmaceuticals with feed. Medion has expressed their interest to partner for pig intervention in Timor.

Contribution of public programs

In NTT, the government provides financial program support via the Anggur Merah program (at provincial government level).

21. SEAWEED NTT[35]

Amid vast growth of the food, materials, and pharmaceutical industries in which seaweed is an important raw material, the world seaweed market since 2010 has grown 13% annually. Globally, China dominates Raw Dried Seaweed (RDS) imports at around 47% of the nearly USD 1,1 billion world import value. Meanwhile, other countries such as Japan, Chile, and the U.S. individually imported less than 8% of RDS. Asian countries currently lead seaweed production in a growing world market and Indonesian production accounts for more than 39%. Indonesia has experienced a gradual growth of RDS production, having a favourable environment for tropical seaweed cultivation, particularly Eucheuma cottonii and Eucheuma spinosum strains which dominate the use of seaweed for many industries due to its valuable substance, carrageenan. Between 2000 and 2013, annual RDS production in Indonesia rose from under 200,000 MT to around 9.3 million MT, and in 2007 Indonesia replaced the Philippines and became the world's largest seaweed producer. Indonesia particularly serves the Chinese RDS market that grows at more than 10 percent annually. Since then, the production has continued steadily at 30% per year. Around 70% of the whole RDS produced in Indonesia is exported as raw materials while the rest is processed domestically by 20 processing companies into food or non-food grade chips and carrageenan powder as raw ingredient for various industries.

In Indonesia, RDS production is mainly centralized in Eastern Indonesia where the Sulawesi and NTT provinces dominate total national production. NTT is an established area for seaweed production, second after South Sulawesi in the current list of top RDS producers. Initially, NTT produced approximately one fifth of national production but it has fallen to 200k MT in 2014. Although NTT has high potential for development due to its good local growing conditions and weather, it is estimated that up to 30k active farmers still continue cultivating seaweed in a decreasing cultivation area. Although logistics and transportation services are functioning well and are provided by collectors and traders, farmers lack access to knowledge, market information, and quality seedlings. In most regions in NTT, farmers do not apply improved technologies or cultivation techniques, and often engage in labour-intensive practices and unproductive cultivation techniques. Technology transfer services from the private sector are performing poorly, while support provided by local government are not focused on knowledge and information, but rather on the provision of cultivation materials instead.

Challenges and constraints

[35] The intervention in this subsector is being co-managed by Mercy Corps (as PRISMA's co-facilitator).

Four major root causes contributing to why farmers in NTT gain low profit from cultivating seaweed:

- Limited access to knowledge and information.
- Almost no access to quality inputs (seedling) and related supporting functions to cultivate seaweed.
- Wide gap of relationship and distance between RDS end markets and farmers.
- Interrupted source of income due to the effects of current weather changes and geographical constraints.

Vision of Change

PRISMA's vision of change is that by 2018, seaweed farmers in NTT will increase their productivity of quality seaweed. This means producing export-quality seaweed which attracts a high market value, encouraging other smallholder farmers to start quality seaweed production, and increasing national production to meet global demand.

The PRISMA approach

To achieve this vision, PRISMA will support and collaborate with the private sector to:

- Strengthening private sectors capacity for sustainable seaweed business.
- There is a lack of information flows amongst market actors in the seaweed market system and a lack of efficiency on the value chain to improve the sector. Through a partnership, farmers have more incentive to improve on quality seaweed based on feedback and assistance from processing companies. Support and collaboration among private actors would improve coordination commercially and support better use of resources in strengthening the sector.
- Preserve availability of good quality seedling among farmers is crucial for sustainability of seaweed sectors in NTT. Facilitate processing company to form nurseries and distribute it commercially to farmers should be ensured.
- Empower village collectors and facilitate formation of Community Owned Company as intermediate service actors.
- Farmer groups or village collectors and community owned company become the seaweed collectors and their capacity is strengthened through technical assistance and capacity building. The collectors will have the function of collecting and drying the seaweed, delivering it to private sector partners, as well as providing and feedback and GAP knowledge from processing company to farmers.

Progress and signs of systemic change

Currently, PRISMA has an intervention in seaweed with Yayasan Kalimajari as cofacilitator. This intervention is located in 7 districts, which are Alor, Rote Ndao, Kupang, Lembata, East Flores, East Sumba, dan Sabu Raijua. These districts were chosen because there are large numbers of active seaweed farmers and there are many areas with high potential that are underdeveloped, proving an opportunity to increase both production and productivity of seaweed farmers.

- PT Rote Karagenan Nusantara (RKN), one of the significant partners in NTT, completed 95% of its factory and is expected to start its own first production on September 2017. To secure supply of raw dried seaweed (RDS), RKN established a community owned company (badan usaha milik rakyat / BUMR) with cooperatives with 70% ownership share for cooperatives and 30% for RKN. BUMR will act as intermediate service provider that buy RDS from farmers and sell it to RKN. In the formation of BUMR, Yayasan Kalimajari contributed in developing capacity of its management in the seaweed industry. During organizational formation a few cooperatives that became shareholders of BUMR. RKN has prioritised Kupang, Alor and Rote for its activities, and other potential partners are needed to reach other areas such as East Flores, Sumba Timur, and Sabu Raijua, to become off-taker for the farmers. To anticipate this, PRISMA approached Hydrocolloid Indonesia which one of the biggest market actors in Indonesia.

- To ensure the availability of seedlings and quality seedling in NTT, RKN established nurseries in Alor, Rote, and Kupang and commercialised seedlings for farmers at an affordable price, since RKN believes that the quality of their end product which is Semi Refined Carrageenan (SRC) is determined mostly by the quality of RDS from the factory. Establishment of these nurseries only reached 30% accomplishment due to a lack of good quality seed supplies from outside of NTT. Good quality seeds are still a priority for RKN and Yayasan Kalimajari.

Contribution of public programs

The Local government of East Sumba and Sabu Raijua support the seaweed industry in NTT by building processing companies in districts in 2015 and 2016 respectively. Since those processing company are not managed professionally, PRISMA and Kalimajari did not approach them as our partners.

22. SEAWEED WEST PAPUA AND PAPUA[36]

Amid vast growth of the food, materials, and pharmaceutical industries in which seaweed is an important raw material, the world seaweed market since 2010 has grown 13% annually. Globally, China dominates Raw Dried Seaweed (RDS) imports at around 47% of the nearly USD 1,1 billion world import value. Meanwhile, other countries such as Japan, Chile, and the U.S. individually imported less than 8% of RDS. Asian countries currently lead seaweed production in a growing world market and Indonesian production accounts for more than 39%. Indonesia has experienced a gradual growth of RDS production, having a favourable environment for tropical seaweed cultivation, particularly Eucheuma cottonii and Eucheuma spinosum strains which dominate the use of seaweed for many industries due to its valuable substance, carrageenan. Between 2000 and 2013, annual RDS production in Indonesia rose from under 200,000 MT to around 9.3 million MT, and in 2007 Indonesia replaced the Philippines and became the world's largest seaweed producer. Indonesia particularly serves the Chinese RDS market that grows at more than 10 percent annually. Since then, the production has continued steadily at 30% per year. Around 70% of the whole RDS produced in Indonesia is exported as raw materials while the rest is processed domestically by 20 processing companies into food or non-food grade chips and carrageenan powder as raw ingredient for various industries.

Even though there is huge potential, currently West Papua and Papua haven't become provinces that produced significant seaweed in Indonesia. However, with increasing domestic and global demand of carrageenan over the years, new cultivation areas such as Fakfak and other islands out of West Papua and Papua such as Nunukan, Sebatik, Morotai have started increasing their production. Although the high transportation cost of shipping RDS from West Papua and Papua is still an influential factor in the buying price, RDS production in Papua is increasing where 44,8 MT was shipped out from the region since 2014, making this region a promising new seaweed producer in the country.

Challenges and constraints

Four major root causes contributing to why farmers in WP/P gain low profit from cultivating seaweed:

- Interrupted source of income because of current weather changes and geographical constraints
- Wide gap of relationship and distance that caused high transportation and distribution cost between RDS end markets and farmers.
- Almost no access to quality inputs (seedling) and related supporting functions to cultivate seaweed.
- Limited access to knowledge and information.

Vision of Change

PRISMA's vision of change is that by 2018, changes in the seaweed industry in WP/P begin showing improvement that increase farmer's productivity of quality seaweed, and improve reciprocal collaboration among government, financial institution, collectors, off-takers, and farmers. PRISMA's goal is that farmers can produce export-quality seaweed which attracts a high market value, encouraging other smallholder farmers to start quality seaweed production, and increase national production to meet global demand.

[36] The intervention in this subsector is being co-managed by Yayasan Kalimajari (as PRISMA's co-facilitator).

The PRISMA approach

To achieve this vision, PRISMA will support and collaborate with public and private sector to:

Establish mutual public-private partnership for local seaweed sector development.

- There is a lack of coordination amongst market actors which are public and private in the seaweed market system and a lack of collaboration and support to improve the sector. Through a partnership, farmers have more incentive to improve on quality seaweed based on feedback and assistance from processing companies, private actors are more efficient on collecting and distributing RDS, private sector partners establish nurseries, and private actors receive funding needed from financial institutions, and local government provides support to farmers and creates policy benefiting seaweed industry. Support and collaboration among government and private actors would improve coordination between commercial and public interests and support better use of resources in strengthening the sector.

Progress and signs of systemic change

PRISMA in cooperation with Yayasan Kalimajari designed its intervention in WP/P in the first semester of 2017 and will execute it in second semester 2017. This intervention targets 4 districts, which are Fakfak, Kaimana, Biak and Yapen, since these districts have huge potential in terms of number of potential seaweed cultivation area and a large enough population to utilize this potential. Moreover, many numbers of active seaweed farmers have low productivity due to lack of knowledge on how to mitigate risk of climate and weather changes that could ruin their seaweed cultivation and lower their income.

PT Indonusa Algaemas Prima (Indonusa), established in 1995, will be off takers for the seaweed intervention in WP/P and are ready to partner with Yayasan Kalimajari. To secure its RDS supply, the Indonusa in Malang will need intermediaries to connect its procurement arm to farmers. Yayasan Kalimajari facilitates establishment of supply and demand channels in each of those 4 districts.

Intermediaries in every district have different characteristics although they play the same role. In Fakfak, Yayasan Kalimajari facilitates the village owned company (Bumdes), while in Yapen this role will be conducted by the district owned company (BUMD Yamase) and in others districts played by private sector partners.

In this intervention, Bank Papua agreed to disburse credit to farmers and intermediaries and at the same time provides financial management knowledge. A Memorandum of Understanding (MOU) between Bank Papua, local government, and corporate intermediaries is in the signing stage in the Yapen district, while in other districts MoUs are in the drafting process.

Contribution of public programs

Communication with the local government supporting farmers has been fruitful resulting in an agreement with Yayasan Kalimajari. The Bupati Fakfak will provide 8 field staff to support farmers and are willing to communicate with the central government to consider Fakfak as a central seaweed cultivation area in Papua. The Head of Fishery and Maritime Department of Yapen districts will provide 12 of their field staff to do support farmers.

At the national level, a meeting between Bupati Fakfak, Ministry of Maritim and Fishery (KKP), Yayasan Kalimajari and one processing company consultant in July 2017 resulted in commitment from KKP to support the seaweed industry in West Papua and Fakfak district particularly. This program by KKP will be executed in 2018 by support the formation of nurseries, support development and distribution of seaweed tissue culture, and build seaweed warehouses. This program will involve other districts that have potential seaweed cultivation areas.

23. SHALLOT EJ

Shallot is one of the seven major commodities to become priorities of the Government of Indonesia. Volatility of shallot market prices highly affect inflation in Indonesia. The Government has restricted shallot import from

other countries that significantly reduced the import value from 2015 and 2016. Because of this restriction, export value also decreased because almost all the production is used for domestic consumption

PRISMA's studies in production and market price on the ground revealed a number of barriers preventing Indonesia's shallot farmers from taking advantage of this crop, and identified the optimum measures needed to address them. Based on the studies, there are at least three areas that prevent farmers from getting benefit, first is the lack of quality seeds, second is the pest and disease problem, third is the post harvest issues.

East Java province is the second largest shallot producing province in Indonesia, contributing around 20.9% of national production in 2016[37]. Most of the farmers in East Java cultivate shallot in the dry season during mid-year using retained bulbs, and have to face the challenge of pest attacks mainly from caterpillars. While some farmers also cultivate shallot in the wet season, they are more susceptible to threats from fungi attacks and adverse weather conditions.

Nganjuk and Probolinggo are the main areas in East Java where shallot is produced, with around 25,000 farmers involved in the production process. Here, issues around low income mainly relates to a) high production costs resulting from pest and disease attack, b) lack of access to good storage facilities during the peak season; and c) low productivity.

Challenges and constraints

The key challenge which prevents smallholder shallot farmers from taking advantage of this market opportunity are:

- **Lack of knowledge of pest and disease management**. Farmers are unaware of the technologies available to combat disease and pest attacks. Crop losses from fungi disease attack (*Fusarium Oxysporum*) and pest (in particular *Spodoptera exigua* caterpillars) can range from 10% to 90% of the entire crop and have a significant impact on the volume of shallot available for sale.
- **Large amount spent on chemical inputs** by farmers to combat the high incidence of pest and disease. This further reduces their income by keeping average production costs high.
- **Lack of advanced storage technology.** Farmers cannot store their crops long term due to the high shrinkage rate of the crops. They have to sell the product immediately to prevent loss in weight even though the price is low. The other main reason for selling immediately is they have to pay debt for the input or chemical cost to the retailer right after they harvest crops.
- **Low productivity due to low quality of planting materials.** Farmers are used to planting shallots with retained bulbs, which carry tuber borne disease. Retained bulbs with tuber borne disease have lower yield, less than 10 ton/ha, while bulbs without tuber borne disease can have approximately 15 ton/ha yield.
- **Limited availability of quality planting materials.** The government of Indonesia has recognized and suggested farmers to plant using TSS (True Shallot Seeds) instead of using retained bulbs. In addition to having a better productivity, **TSS cost is significantly cheaper compared to retained bulbs, and shallot price fluctuation won't affect the planting material price**. The constraint of planting TSS is the limited availability. PT EWINDO (East West Seed Indonesia), as the only TSS sellers in the market, currently do not have enough seeds to be sold in the market.

Vision of change

PRISMA's vision of change at the sector level is that by 2018, smallholder farmers will have increased their productivity and production particularly during the rainy season, and that farmers will have improved their market performance, realising higher prices through greater flexibility when they sell shallots. At the service level, farmers will have improved access to a) pest and disease control technology and information services, b) nursery and planting bulb services, and c) storage services. This vision can be achieved by:

[37] Produksi Bawang Merah Menurut Provinsi, 2012-2016, www.pertanian.go.id

- **Agricultural companies, manufacturer, and service providers** providing planting materials and pest and disease control technology and information services, with possible collaboration with associations and chemical companies to increase awareness and demand of integrated pest and disease management and also production of TSS.
- **Nursery and planting bulb services** involving nurseries, associations/cooperatives and planting bulb traders.
- **Advanced storage services** involving government, cooperatives, or private companies who provide storage and financial services in one package.

The PRISMA approach

PRISMA will collaborate with private sector partners and support them to:

- Provide pest and disease management knowledge and products.
- Establish a social marketing campaign on integrated pest and disease management (IPDM) to create awareness, change behaviour, and create demand for IPDM compatible products;
- Support agricultural companies to promote and increase sales for IPDM products, and also encourage them to inform farmers to use pesticide products in the right way.
- Develop an economically feasible storage strategy for post harvest handling
- Promote TSS

Progress status and signs of systemic change

The first intervention related to the pest management with partner PT Solusi Bioteknologi Indonesia to promote pheromone and solar panel insect light trap is concluded. More than 300 farmers in East Java have benefited from this pilot intervention. However, PRISMA did not continue the intervention due to the lack of commitment from the partner.

PRISMA has signed a partnership with CropLife Indonesia to conduct a social marketing campaign on Integrated Pest and Disease Management (IPDM). In early 2017, a social marketing event was conducted in two locations (Probolinggo and Nganjuk) coordinating with local government, At least 50 government extension service staff had IPDM training and 700 farmers were exposed to IPDM knowledge through the event.

As a scale-up phase of the IPM Intervention collaboration with ARISA, PRISMA signed a contract with PT. Nufarm Indonesia to continue the intervention targeting a broader area (East Java and West Nusa Tenggara. There are some demoplots that have been established in these two provinces which have shown good progress. Nufarm is also interested in working in crops other than shallot such as chilli and cabbage.

In April 2017, PRISMA signed partnership agreement with PT EWINDO (East West Seed Indonesia) as a scale up intervention for Promoting TSS in NTB. The scale up partnership agreement is to answer the unmet demand of TSS in Indonesia by doing TSS trial production at 4 locations in Indonesia.

Contribution of public programs

There are no currently known government programs in shallot pest and disease management. The government has some regulations on shallot commodities: an import restriction regulation has been in place since 2015, and a price limit regulation at the farmer level and market level related to the imports permit. The government also has conducted a shallot storage program implemented by BULOG (Government Logistic Agency), but the outcome was under expectations because of crops withering while in storage.

BALITSA (Balai Penelitian Tanaman Sayur) is targeted to produce 2 ton of TSS in 2017 to be given to shallot farmers all over Indonesia as a subsidy. This was due to the decision from the Minister of Agriculture to promote TSS in 2016. Currently, BALITSA started TSS production in North Sumatra, West Sumatra, Yogyakarta, West Java, West Nusa Tenggara, and South Sulawesi. The varieties to be produced are Bima Brebes, Trisula, Biru Lancor, and Batu Ijo.

24. SHALLOT NTB

Between 2008 and 2015, national consumption of shallot including for local industries averaged 1.1 million MT per year. Indonesia is the world's second largest shallots and onion importer. Although Java (Central, East and West Java) is the highest shallot producing area in Indonesia, making up about 77% of national production, production still could not meet national demand. Imports of shallots have increased sharply over the past decade, with most imported bulbs being consumed as food. In 2014, India, Thailand, Vietnam, and the Philippines were the main sources of Indonesia's imported shallots. Between 2002 and 2014, imports increased from 33,000 MT to 74,903 MT, with the highest import volume reaching 160,467 MT in 2011. Between 2008 and 2014, imports averaged 102,500 MT per annum, despite significant inter-annual fluctuations. Imports accounted for 6% to 15% of domestic shallot consumption each year. Exports are negligible – less than 1.5% of total production. Shallots are mainly exported in September and October, with Thailand and Malaysia the two main destination markets, followed by Singapore and Vietnam. Since 2007, imports of shallot have peaked around March, suggesting a local shortage around this time of the year. There is a clear business opportunity to substitute imports by increasing the production volume of shallots during the rainy season.

In terms of total production, NTB is the third largest shallot producer in Indonesia – after Central Java and East Java – producing 2,020,267 ton of shallots or almost 14% of national production in 2016. The district of Bima and Sumbawa Besar in Sumbawa Island and Lombok Timur are the main NTB's shallots production area.

PRISMA has identified an opportunity for local farmers in NTB to increase productivity through the availability and use of higher quality planting materials with embedded GAP services and quality assurance. This may involve: (1) supporting the production, promotion and distribution of new True Shallot Seeds (TSS) varieties, (2) developing linkages between traders in NTB and suppliers of certified or good quality Super-Philip planting bulbs from Java, and/or (3) supporting the development of certified producers of Super-Philip planting bulbs in NTB.

To promote higher quality planting materials in NTB, PRISMA has been working with East West Seed Indonesia (EWINDO) to promote the use of true shallot seed and to develop a market for TSS derivative products such as early generation bulbs (G0)[38] and seedlings grown from all varieties of TSS. The decision to work on increasing productivity is due to the following reasons: first, the intervention offers the potential for a quick win for farmers by buying TSS seed, seedlings and good quality bulbs and the company will eventually gain more profits from large use of the seed in the targeted area; Secondly, through networking with traders and promotion activities, traders will support more nurseries and can sell more good quality planting bulbs and seedlings to an increased number of both male and female farmers. Finally, the success of the previous program, which established nurseries using TSS and the improved bulbs from EWINDO, should be strengthened and scaled up to benefit more male and female smallholder farmers in NTB.

Challenges and constraints

The major challenges to the shallot sector in NTB are:

- Farmer productivity is low because of their use of poor quality planting materials. Most of the smallholder farmers use retained bulbs sourced from their own farms, neighbouring farms or shallot traders as seeds used for planting material. The study of Vegetable Crops Research Institute in Lembang Indonesia[39] shows that nearly 90% of Shallots in Indonesia have been infected by the tuber borne disease and its impact has been a decline in shallots productivity. Shallot production in Indonesia

[38] G0 bulbs are planting bulbs which have higher productivity and are more pest-resistant than the retained bulbs commonly used by farmers.

[39] "In the period 2007 till 2010 a research project was conducted to improve growing techniques of TSS. Seed emergence in the nursery was improved if the seed was sown in furrows 0.5-1.5 cm deep and by closing the furrow after sowing with soil instead of burned rice husks. Compared to traditional seed bulb crops productivity of TSS was much higher, up to twice as high in some experiments, while the growing period of TSS was two to three weeks longer. A recently developed cultivar, 'Sanren', which is an improvement in productivity, earliness, quality for the local market and which can be grown at a lower plant density than the older cultivar 'Tuktuk', has increased feasibility of TSS in Indonesia. Optimal plant density of 'Tuktuk' was 175 plants per m2; optimal plant density of 'Sanren' was about 75-100 plants per m2, depending on the costs of seedlings. Optimal nitrogen fertilization of 'Tuktuk' was 180 kg N/ha; optimal nitrogen fertilization of 'Sanren' was 240 kg N/ha." L. van den Brink, R.S. Basuki (PRODUCTION OF TRUE SEED SHALLOTS IN INDONESIA)

is based on crops grown from seed bulbs. The introduction of True Seed Shallot (TSS) could be an option to improve competitiveness of Indonesian shallot production.

- Production costs, crop failure and losses are high because of pest and disease. Farmers lack knowledge of GAP and are unaware of more affordable technologies (including those suitable for rainy season production) to combat disease and pest. Crop losses from Fusarium and pest attack (in particular the Spodoptera exigua caterpillar) range from 10-90%. Farmers spend large amounts on chemical inputs, further reducing income by keeping average production costs high.
- Farmers are unable to benefit from higher prices during the off-season. They tend sell their entire crop immediately after harvest (when prices are low) because of no access to storage facilities. While farmers need sufficient cash flow for household needs and inputs for the next planting season, this can usually be fulfilled by selling part of the harvest; the remainder of the crop could be stored and sold when price conditions are more favourable. Traditional storage practices are not suitable for extended periods of time. The lack of mechanisms to control humidity and to ensure that the shallot harvest stays dry can result in a significant deterioration in quality.

Vision of change

PRISMA's vision of change is that by 2018, at the sector level (1) smallholders will have increased their productivity and production, both during the rainy season and in the early months of the dry season, and (2) farmer will have improved their market performance by increasing their flexibility on when they sell shallots, enabling them to obtain higher prices. At the service level, farmers will have improved access to (1) nursery and planting material services (TSS, Seedlings and G0 Bulbs), (2) pest and disease control technology and information services, and (3) storage services. This vision can be achieved through:

- Involving seed companies, nurseries, traders, input retailers and potentially universities to provide nursery and planting bulb services;
- Agriculture equipment companies and net house manufacturers/service providers providing pest and disease control technology, with possible collaboration with BPTP, and
- Government, cooperatives and traders providing storage services.

The PRISMA approach

One way to cut the cycle of the tuber borne diseases is to plant shallot directly from seed. To address this, PRISMA partnered with PT. East West Seed Indonesia (EWINDO) to promote the use of quality planting material for *True Shallot Seed*[40] (TSS). In this intervention EWINDO is promoting varieties of TSS such as Tuk-Tuk, Sanren and Lokananta. The derivative of these TSS products as further developed and promotes as Improved bulbs or seedling as quality planting material. Not only is the seed free from tuber borne pathogen (viruses, bacteria and fungi), EWINDO also provides better embedded services to its partner traders or input retailers who establish nurseries to grow and sell these TSS derivative products as improved bulbs and/or seedlings. In this process EWINDO not only provides technical support for growing, but also certifies the quality of the product.

The planting material produced from TSS can help farmers get better yield than the low quality retained bulbs previously used by the farmer which helps them generate higher income. However, the sales of TSS is still relatively low 1) due to the longer (1 month) growth period than from bulbs and 2) requirement of different technical skills than the current practice.

[40] The term 'shallots' commonly refers to the green leaves and stems of non-bulbing onions. They are grown for their whole tops, the leaves of which form long, hollow tubes and are eaten as a green vegetable. They may also be known as 'straight-leaved onions'. These are not 'true' shallots, but rather are selections of the common onion (Allium cepa var. cepa). They are propagated using seed planted at high density. Because of the combination of high-density planting and variety, these selections tend not to produce bulbs like the onion. True shallots (Allium cepa var. aggregatum) are grown primarily for their bulbs, although the green tops may also be consumed. Each compound bulb consists of several sets/cloves that are ideally about 30 mm to 40 mm in diameter, with brown skins and a purplish tinge inside the bulb. True shallots are used in place of onions as they have a delicate, yet distinctive, flavor that persists after cooking. Traditionally true shallots have been propagated using bulb material, but the intensiveness of production has meant that they have only been produced on a minor scale. More recently, with changes in culinary tastes, there is renewed interest in true shallots. Seed companies have now produced varieties that can be grown directly from seed.

PRISMA is establishing linkages between the shallot seed company and partner traders/nurseries to diversify and produce better standardised planting material from TSS such as improved bulbs and seedlings. However, the focus since 2014 was more on producing branded bulbs (G0Pro) as planting material from TSS seeds and the ownership from the nurseries was very low. So, learning from this experience EWINDO tested a new innovation of growing seedlings from TSS seeds and also seedling to branded bulbs. In this new strategy, there are two layers of nurseries

1) TSS seeds to seedlings, 2) TSS seeds to planting bulbs and seedlings to bulbs.

Until now, the demand for bulbs is still higher than seedlings, and the number of the nurseries growing TSS seeds to bulbs are also more than those growing TSS seeds to seedlings. However, the demand of seedlings is growing significantly also. This innovation, still in its pilot phase, is showing great potential for systemic change, as the ownership by the nurseries has improved. Also, this method of growing seedlings from TSS seeds can help farmers to save time and reduce the cost of production. It takes approximately 3 to 4 months to produce branded bulbs (G0Pro) from TSS seeds. However, with the new access to seedlings, now it only takes approximately 45 to 50 days to produce seedling from TSS seeds. Thus, due to the reduction in planting period, the farming cost is reduced significantly by 25% to 50%. As the planting period is reduced there is lesser use of pesticide, fertiliser and labour cost as compared to producing retained bulbs as planting material.

To achieve its vision, PRISMA has already begun collaboration with the private sector (partnership with EWINDO started at the pilot intervention stage in 2014). The aims are:

Nursery development (Seedling Nurseries and Bulb Nurseries)

- Newly-established and existing nurseries will buy EWINDO-supplied seed to produce higher quality planting bulbs and seedlings and sell them to shallot farmers, either directly or through traders. The incentives for nurseries include improved skills and knowledge, and the assurance and certainty of income. These will increase sales of EWINDO's true shallot seed (TSS), as well as the sale of TSS through input retailers.

Promote the Use of True Shallot Seeds (TSS) and its derivatives: seedlings and planting bulbs

- Demonstrate the profitability of the business to traders and retailers, to encourage them to buy better quality planting bulbs and sell them to shallot farmers. Work has already started on this:
  - PRISMA supports Demo Plots and Expo for the use of TSS and Its derivatives.
  - PRISMA supports studies to identify key areas in which to work to develop certified G0 bulbs.
  - It has selected certain traders and linked them with EWINDO and the nurseries. EWINDO collaborates with these traders and retailers on branding and promotion, which will help increase sales.
  - Traders are incentivised by the potential of increased income by selling improved quality planting bulbs at a higher price, creating a price differentiation for good quality planting bulbs.

Rainy Season Production

- Support production in the rainy season and early dry season production area in NTB
- Partner (EWINDO) to introduce Rainy season varieties of TSS named TSS Sanren

Progress and signs of systemic change

- At the company level, EWINDO has changed its approach to shallot, from one of non-focus to making it a priority product.
- The director for business development has been assigned to design a business plan for several products, including shallots.
- It has appointed 2 Shallot specialists to manage the development of the shallot sector.
- EWINDO is investing in research and production of a new varieties of true shallot seed (TSS) : Sanren and Lokananta. Sanren is a rain resistant variety.

- Marketing team of Ewindo has been implementing 164-200 demo plots all around Indonesia on their own in 2016.
- EWINDO increased their target sales to 5.5 tons TSS for 2017, 10 tons for 2019 and 40 tons for the next 5 years.
- EWINDO's shallot business was handed over from Business Development to Sales and Marketing Department by February 2017.
- There are signs of 5 companies entering TSS Business:
  - PT. Agrosid Manunggal Santosa
  - PT. Benih Citra Asia
  - PT. Agri Makmur Pertiwi
  - PT. Bisi Internasional
  - PT. Sang Hyang Sri
- The Ministry of Agriculture will now allow EWINDO to import more than 1 ton of shallot seeds/TSS per year (current quota). EWINDO now has the permission to import an unlimited quantity of shallot seeds
- There has been a change of regulation on Shallot Seed Certification by the Minister of Agriculture to accommodate the certification of planting bulbs from TSS:
  - Peraturan Menteri Pertanian Nomor 01/Kpts/SR.130/12/2012 tentang Pedoman Sertifikasi Benih Hortikultura belum menyertakan sertifikasi benih bawang merah biji changed to keputusan menteri pertanian nomor : 131/Kpts/SR.130/D/11/2015 tentang pedoman teknis sertifikasi benih bawang merah

Contribution to public program

A GoI program covers several areas of the country including NTB, aimed at fulfilling Indonesia's shallot demand gap. In the short term, this will provide planting bulbs for the farmers, and the government is encouraging production of good quality planting material to buy back for the program. In the long term, if the area of land dedicated to production is increased, so too will the demand for quality planting bulbs.

The government is now seeking to promote the use of shallot seed to deal with inflation. This is because there is no fluctuation of seed price and can result in higher yields that can help close the demand gap.

In 2017 PRISMA is contributing to the government initiative by working with EWINDO to implement a production trial of shallot seeds in Indonesia.

25. SOYBEAN EJ & NTB

The national demand for soybean in Indonesia is estimated to be 2.9 million MT and is growing at an average of 6.4% annually. However, a sharp decrease after 1998 in the country's national soybean production triggered a significant increase in soybean imports. Average annual production is currently 0.9 million MT; Indonesia also imports 1.9 million MT every year to meet domestic consumption, making it one of the world's major soybean importers. Although productivity is increasing, the country's total harvested acreage has been experiencing (particularly after 2009) a downward trend of -7.7% per year. A clear opportunity exists to increase production which will help reduce imports.

Soybean farmers in PRISMA provinces (numbering almost 270,000) can tap into this opportunity. East Java and NTB are among the country's largest soybean producing regions, contributing an estimated 48% to national production. In East Java, around 30% of soybean farmers are poor or near-poor; the province has the highest productivity per ha in Indonesia (1.6 MT per ha) but not all of its districts are able to reach this level. The scenario in NTB is similar. Compared to the average national productivity rate of 1.6 MT per ha, some soybean farmers in NTB experience relatively low productivity (an average of 1.1 MT per ha or less).[41]

[41] BPS, 2013; BPS, 2012; PRISMA calculations, 2014.

Challenges and constraints

The inability of farmers in EJ and NTB to increase production can mainly be attributed to:

- Low productivity of soybean. Farmers use poor quality input and apply poor agriculture practices which results in lower productivity. This is caused by a) the limited availability of good quality seed, b) a lack of access to information on GAP, c) improper use of agro-chemical inputs
- Lack of new and highly productive soybean seed varieties available in the market. Even though government R&D such as BATAN and BALITKABI have developed highly productive varieties, the availability is very low in the market due a to lack of coordination with other government institutions to disseminate the new varieties. On the other hand, private seed producers who have capacity and good distribution channels have not committed to enter this market..
- Loss of soybean in the post-harvest process. Soybean farmers lose about 5% of their harvest and the loss rate increases during the rainy season because of their reliance on inefficient traditional harvesting methods and lack of post-harvest knowhow and technology.
- Low price of locally produced soybean. Soybean price is also becoming one of the main issues as farmers are demotivated to plant soybean because the market price is too low. This is caused by low quality of locally produced soybean as a result of improper practices mentioned above.

Vision of change

PRISMA's vision of change is that soybean farming becomes more profitable for smallholder farmers through increased productivity, cost reduction, and better prices.

This will attract more farmers to go into soybean production, which will increase domestic production. This vision can be achieved through:

- Soybean seed nurseries expanding their market and reaching beyond traditional customers;
- Input suppliers such as pesticide companies provide knowledge on the better use of pesticide as well as information of Good Agriculture Practices for soybean cultivation to increase yield;
- Private companies produce and distribute new and high yield seed varieties to increase production of soybean;
- Input suppliers, off-takers, and technology companies provide knowledge on improved post-harvest techniques and technologies.
- Off takers purchase good quality local soybean at better prices and provide embedded services on harvest and post-harvest knowledge and technology

The PRISMA approach

To achieve its vision, PRISMA will collaborate with the private sector and government to:

Establish new soybean nursery trained by the government

- Support government in training new soybean nursery
- Identify market area for new soybean nursery to sell their product

Promote Good Agriculture Practices (GAP) through companies

- Support input companies to identify potential marketing area for promoting their product
- Develop a marketing and promotional strategy for agro input companies
- Develop a set of activity plans to educate soybean farmers about GAP and promote its use
- Support an input company with soybean expert to train their agents
- Develop incentive scheme for input companies to make this program more attractive
- Input companies provide these embedded services along with the products they sell

- Input companies copy the model for other crops and continuously utilize their agent throughout the year

Promote new and high productivity seed varieties developed by government R&D to be disseminated by private companies

- Conduct market assessment to invite and convince seed producers to enter soybean market
- Connect seed producers with government R&D to disseminate new and high yielding varieties
- Support seed producers in production and marketing trial on new soybean varieties
- Support seed producers to obtain self-certification license
- Develop capacity building activity on soybean GAP for companies' production farmers and staff
- Support seed producers to develop a marketing and promotional strategy

Promote the availability of commercial certified seeds through agro-input distributors

- Conduct market assessment to identify potential marketing area beyond subsidy program to convince nurseries to enter new area
- Provide nurseries with list of potential retailers such as BUMDES, KWT, Farmer Group, Kiosk, etc to be their new distribution channel
- Support nurseries with branding and packaging design which is smaller than their usual packaging to increase awareness of using certified soybean seed to more farmers
- Develop a marketing and promotional strategy for nurseries

Progress and signs of systemic change

During the reporting period, PRISMA worked with the East Java and NTB provincial governments to achieve the following:

- The newly established soybean nursery in Trenggalek is continuously producing good quality certified soybean seed from 25Ha of land. The Government in Trenggalek continues ordering from this nursery since 2015. With more experience, the nursery started expanding its business into cassava.
- PT. BASF Indonesia (BASF) is promoting GAP in soybean cultivation through the soy doctor program since 2015, addressing challenges of low productivity and limited access to GAP. 763 farmers in NTB (direct and indirect) have benefited from this intervention. BASF is satisfied with the program and set a vision to be a market leader in the agro-chemical industry for soybean in Indonesia. BASF invited another counterpart, MyCrop, a platform company to better monitor soy doctors and generate sales from the platform. This collaboration is led by the extension services team
- PT. East West Seeds Indonesia (EWINDO) has invested in the pilot production of a new soybean variety from BATAN. With support from PRISMA, EWINDO has obtained self-certification license for soybean seed through advocacy to Quality System Certification Bodies (LSSM). Currently, EWINDO is going to produce 25 tons of certified soybean seed in July 2017 to be sold in March 2018
- PRISMA introduced EWINDO to Balitkabi who agreed to conduct a production trial for 3 new soybean varieties in July/August 2017
- PT Rainbow Agrosciences has seen the benefit of the soy doctor program and replicated the model calling it "Laskar Pelangi". PRISMA supported Rainbow to implement the business model which started in October 2016 in Banyuwangi and Sampang and now they are expanding to Ponorogo. Towards the end of the first season, Rainbow developed a year work plan to replicate the business model to other districts. Furthermore, with support from PRISMA, Rainbow started applying a similar model for other crops such as Shallot and Vegetables.
- CV.Agro Makmur Mandiri distributed certified soybean seed commercially in Bima and Dompu area in early December 2016. Based on the learning from these activities, the business model changed and

PRISMA directly support nursery to expand sales area. The nursery started to distribute soybean seed in smaller and branded packaging to increase awareness of the farmers using good quality certified seed. PRISMA supported the nursery with a list of potential retailers from a wider area and the nursery is interested to follow up with these retailers to promote certified seed to a new market

Contribution of public programs

Varieties of soybean seed are mainly produced by various government research agencies (Balitkabi, Balai Benih Indonesia and BPTP); no private sector organisations are involved in developing seed. Seed distribution is currently carried out through a government subsidy program.

Soybean is one of the three crops subsidized by GoI, which it does through a seed subsidy program and the Upsus program (Upaya Khusus or 'Special Efforts'). The total budget for the seed subsidy program (which includes rice, maize and soybean) will increase slightly in 2016 (to IDR1.06 trillion, from IDR0.960 trillion in 2015). The program leads results in some farmers relying mainly on subsidized seed and creates barriers for private sector actors to enter the soybean seed business. At the same time, it does not provide enough soybean seed to fulfil demand.

In 2017, the Government's subsidy for soybean is forecasted to decrease, which means more opportunities may be available for the private sector to enter the soybean market.

26. VEGETABLE EJ,NTB & NTT

Indonesia's market for vegetable, potato and fruit products grew by 25% compound annual growth rate (CAGR) from 2007 to 2012, mainly because of business demand. Despite being the 14th largest vegetable producer in the world (2012) and the largest in Southeast Asia, Indonesia's vegetable import volume continue to grow faster than the export volume. This situation happened due to Indonesia's upper middle class (141 million people by 2020) who contributes to a new trend of increased awareness of health and the nutritional benefits of fresh vegetables. The market becomes highly promising for both local and foreign producers; however, the country's reliance on imports is highlighting the declining competitiveness of Indonesia's domestic horticulture sector as well as the government's move towards more protective and restrictive trade policies.

Thirty-three of Indonesia's provinces produce over 20 types of vegetable; however, 85% of all vegetables grown are on the islands of Java and Sumatra. Here, the major vegetable producing provinces are West Java (35.6%), Central Java (13.3%), East Java (11.9%) and North Sumatra (10.3%), accounting for over 70% of all the country's vegetable production.

Despite of its position as the third largest vegetables producer in Indonesia, East Java (EJ) has lower productivity compares to the provinces in the western of the country. Compares to the national average, productivity of potato, cabbage and shallot of EJ are slightly higher. However, chili and tomato produced in EJ has lower productivity than the national average[42].

Vegetables sector in EJ is dominated by multi-layer distribution system where the transfer of harvested crops from farmers to end customers takes place through multiple market actors. The long distribution chain implies to poor information flow and information asymmetry among players within the chain. Each market actor is likely to have information only from its direct buyers. While information from indirect customers is often unknown, such as end-customer preferences and current market price are less likely to reach rural farmers. Moreover, low education of most of small holder farmers limits their ability to obtain such information[43].

NTB has 4,5 million inhabitants and is one of the poorest provinces in Indonesia with the poverty rate that stands at 16.48%, higher than the 10.96% national poverty rate (2015 Data of the Central Agency on Statistics/BPS) and heavily relies on Agriculture production as its source of income. Furthermore, based on PPI study conducted by PRISMA, 70% of vegetable farmers in NTB are poor. For last decades, NTB has been

[42] Calculated based on Ministry of Agriculture, 2014. http://www.pertanian.go.id/ap_pages/mod/datahorti
[43] Soviana, S., & Puspa., J. 2012. Multi-layer distribution system of Indonesian fruit-vegetable sector: Current challenges and future perspectives.

facing chronic poverty issue, with high prevalence of nutritional problems as much as 43.65% (Rencana Aksi Daerah Pangan dan Gizi, 2015).

East Nusa Tenggara (NTT) is one of the lowest vegetable-producing provinces, contributing only 0.43% to Indonesia's total vegetable production[44]. It is recognised that NTT is a net importer of vegetables (with the exception of garlic and spinach), with supply mainly from Java (ACIAR 2007), suggesting an opportunity to stimulate production in less developed regions.

NTT is one of the poorest and least developed of Indonesia's provinces with a poverty rate of 25.7% (not considering regional difference), significantly higher than the 16% national poverty rate, and relies on agricultural production as its primary source of income. NTT is considered to have low productivity of vegetables, which is reflected by a negative productivity index with just 2.9 MT per ha, less than 30% of the national average (10.32 MT per ha) in 2013.

With an average of eight months per year with no rainfall, Timor Island is one of Indonesia's driest regions. During this time farmer lands dry up, limiting production and income generation opportunities. The focus remains on subsistence agriculture, with little awareness of diversified vegetable consumption. A PRISMA study into PPI, August 2015, indicates that 88% of sample households on Timor Island earn less than USD2.5 per day and that food insecurity here is high.

Challenges and constraints

The major challenges to the vegetable sector are:

- Farmer productivity is low due to unfavourable environmental and climatic factors, limited practices of land and water management, poor farming practices, and a lack of application of quality inputs and integrated pest management techniques.
- Farmers have limited access to information on vegetable market, price, and weather. On the ground, actors who channel information are also limited and these have hampered knowledge sharing and transfer to the farmers.
- Product selling price is low because of oversupply of vegetables, poor quality due to limited post-harvest practice knowledge and techniques, and weak bargaining power and an inability to access modern markets.

Vision of Change

Focusing on achieving the potential growth as well as overcoming the challenges of vegetable sector in EJ, NTB, and NTT, a vision of change can be outlined for both the sector and service levels. The vision of change at the sector level is to: (1) increase production of vegetable to substitute imports of vegetables (2) improve market performance for farmers. At the service level, it is envisaged that farmers will have improved access to: (1) quality input (2) agriculture knowledge & information, (3) post-harvest knowledge, (4) off-season technologies, and (5) financial services.

The PRISMA approach

To achieve its vision, PRISMA will collaborate with the private sector to:

Promoting quality agro-input for the vegetable sector

- This intervention will improve productivity and efficiency of vegetable farming by improving farmer's capacity on good agriculture practice and make sure a good agro-input is reachable and accessed by farmers. Particularly in East Manggarai, West Manggarai and Manggarai districts in Flores, the intervention will facilitate the private sector to establish a new agro-shop that would cover the area. The local retailers will be supported to have the capacity to provide on-farm and off farm information and extension services to farmers.

Stimulate business which encourages private sector providing extension service on vegetable.

[44] "Final Report AIPD Rural Vegetables NTB & NTT 2013" ; Ignatius Khomasurya and Phillip Morey, 10th October 2013

- By strengthening dissemination of knowledge on farming practices, this intervention would bring knowledge to farmers including information on market, weather, planting pattern and on quality inputs. One notable channel is utilizing mobile applications that collect farmer data (as customer) important for private partners to craft sales and promotion strategies.

Progress and signs of systemic change

PRISMA and EWINDO (East West Seed Indonesia) is in partnership for developing a mobile application, called SIPINDO, that aims to strengthen the dissemination of knowledge on farming practices and crop planning to smallholder farmers through a broad range of market actors including agro-input sellers, nurseries, lead farmers, extension staff, and vegetable traders. SIPINDO will also enable the private partner to collect their customer data as an important source for planning sales and promotion strategies. Therefore, the importance of the data mining capability of the mobile application provides a strong incentive for the private partner to be involved in the intervention.

During the partnership duration, EWINDO also has its own additional activities to complement SIPINDO, such as a grand launch and promotion through various channels (billboard and national agriculture event). The partnership between PRISMA and EWINDO is extended for another year and it will end on June 2018. The additional activities for the extended year include market linkage for vegetable farmers in NTT, online promotional activities, and iOS version development for SIPINDO.

PRISMA also collaborates with PT. NASA on the development of a mobile application to penetrate prospected areas in EJ, NTB and NTT by improving agricultural knowledge of NASA's distribution agents. NASA's multi-level marketing approach enables distribution agents with non-agriculture background to join the network. The mobile application will be utilized as an educational platform to improve agents' knowledge. Furthermore, the mobile application also provides inexpensive and effective promotional media to be used by NASA's agents. Comprehensive knowledge on good cultivation practices, pest and disease symptoms, and NASA's product information will be presented in the application. Many of NASA's agents (up to thousands of wholesalers and distributers) will be involved in the dissemination of agriculture knowledge provided through the Mobile Application.

As part of a strategy to accelerate bio-inputs introductions to smallholder farmers, PRISMA also supports NASA's promotion activities in the new districts where bio-inputs application is rare. Farmer meetings, technical visits and demo plots are conducted to educate farmers on the technology options in plant protection and nutrition. NASA's wholesalers and distributers are involved in conducting the promotional events in the new districts. Further, this promotional activity also aims for expanding NASA's distribution channel in NTB and NTT.

To address pest and disease problems, PRISMA collaborates with PT. Rainbow Agrosciences (RAID). PRISMA is supporting Rainbow to conduct promotion activities and provide capacity building to multiple stakeholders including farmers, public extension service staffs, and district government. Additionally, PRISMA aims to support Rainbow to establish distribution channel in EJ, NTB and NTT.

At the bigger scale, PRISMA and Rainbow initiated National Retailer Training to improve the capacity of Rainbow's retailers in Business Management and the Financial Management Cycle. At the same time, training is also supported for Rainbow's ambassadors, namely '*Laskar Pelangi*' who will provide consultation services to farmers in East Java.

Further, PRISMA supports two retailers in NTT, which are UD. Sumber and UD. Sahabat Tani to establish input shop in Manggarai and Ende districts. Similar as collaboration with Rainbow, PRISMA also supports the input retailers in promotion activities and capacity building of its field staffs.

In addition to partnering with big private partners, PRISMA has interventions on promoting quality agro-input, that is in the contracting phase, with a local private sector partner in the NTT region. PT. Agrosid also shows interest in developing a similar intervention with PRISMA to educate and promote the importance soil quality on vegetable farming.

Contribution of public programs

PRISMA's partner in vegetable, PT EWINDO (East West Seed Indonesia), has a partnership with PUSDATIN (Pusat Data dan Informasi) Ministry of Agriculture to share market price data on SIPINDO. PUSDATIN Ministry of Agriculture has daily market price data for horticulture commodities, that is sent to SIPINDO on a daily basis using API (Application Program Interface). This enables SIPINDO's users, who are mainly farmers, to get the most updated market price information from across Indonesia.

PRISMA is exploring potential cooperation and involvement of local Agriculture Offices to disseminate GAP knowledge of vegetables through government extension staffs. The Agriculture Office of Malang and Kediri are interested in collaborating with PT. NASA in bio-inputs promotion to overcome the problem of chemical overuse in vegetables. The government and private partner collaboration is expected to create benefits for the both parties. Besides market penetration of bio-inputs, the intervention with PT. NASA also aims to improve government extension staff knowledge on pest and disease control.

27. VEGETABLE WEST PAPUA & PAPUA

Indonesia has been well-known as the largest vegetables producer in ASEAN, at 34% of Vegetables produced in the region from Indonesia. The geographic conditions and volcanic soil are suitable for horticulture farming. Yet, Papua and West Papua are regions where vegetables are still imported from other islands in Indonesia. Vegetables productivity is far below the national level of productivity, and Papua and West Papua are not able to fulfill up to 60% of domestic vegetables demand. The vegetables are imported from Surabaya, Makassar, and Manado and include potatoes, carrots, shallots, tomatoes, cabbage, cauliflower, broccoli, and chilli.

In general, vegetable farming in Papua and West Papua is based on two categories: lowland farming and highland farming. Lowland farming is mostly done by trans migrants and indigenous farmers; highland farming is only done by indigenous farmers. For highland vegetables, the additional factors of infrastructure and transportation are major issues, leading to high transportation costs which increase the price of goods, including in other agriculture products.

The total Population of Papua and West Papua is 4 million, 1,4 million people or 35% of those work in the agriculture sector. 31% of the total population in Papua and 27% of the total population in West Papua are living in poverty. Especially in West Papua, 47,940 (or 68% of the total) farmer households work as horticulture farmers in 2013. Aside from some green leafy vegetables, many vegetables in Sorong, Manokwari, Timika, Jayapura, and Merauke are still imported from outside the island due to low production and low productivity, resulting from a lack of good quality seed use and low application of good agricultural practices.

Challenges and constraints

The major challenges faced by the vegetable sector in West Papua are:

- **Farmers experience low productivity because they do not use good quality seed**. In general, farmers in West Papua, and especially in Greater Manokwari, have been using seed bought from seed kiosks. However, most farmers still do not use good quality seed. There are different types and brands of seed in the market. In certain crops, farmers are unaware of the damage using low quality retained seeds to cut cost. There is, however, little or no information for farmers on how to use good quality seed so as to increase crop yields.
- **Farmers lack knowledge of supply management, contributing to high vegetable distribution costs**. Farmers have no access to information about demand for different types of vegetable. Instead, the majority take their harvest directly to the market place and sell it to big collectors. Indigenous farmers sell directly to the consumers in the market place, it can take up to three days for them to sell their produce.
- **For highland farmers, transportation can be a barrier**; especially in Arfak Mountain District, high transportation costs render their vegetable prices uncompetitive, particularly in comparison to similar, imported vegetables.
- **Farmers lack information on Good Agricultural Practices.** Most farmers use traditional farming techniques. Even though many transmigrant farmers have used branded seeds, transmigrant farmers

are lacking knowledge on vegetables GAP. Hence, it leads to pest, diseases and fungi problems which in turn reduces productivity or failed harvest.

- Insufficient post-harvest handling practice of harvested vegetables is one of the constraints to obtaining a better selling price in the modern market. Farmers usually do not pre-sort or package the harvested crop due to limited awareness, knowledge or skills, or the resources needed to invest in these activities. The lack of up-to-date harvest and post-harvest know-how leads to many putting minimal effort into maintaining their vegetable crops, resulting in low quality of produce.

Vision of Change

The vision of change at the sector level is to: (1) increase local production and productivity to substitute imported vegetables, and (2) improve market performance for farmers by establishing an effective supply management system. At the service level, it is envisaged that farmers will have improved access on: (1) good quality seed, (2) information and extension services, (3) post-harvest information and technology, and (4) transportation services.

PRISMA envisions that traders, collectors, distributors, transporters and government will be involved in providing a range of these services, enabling them to implement good agricultural practices including post-harvest and access more effective distribution services. Seed and information services would also involve input suppliers (seed or fertiliser companies) and agro-input retailers. Finally, financial services tailored to the differing regional needs of the vegetable farmers will involve credit unions and agricultural equipment companies.

The PRISMA approach

To achieve its vision, PRISMA will collaborate with the private sector and government to:

- **Promote the provision of knowledge and the use of good quality seed.** This will boost the productivity of vegetables. AIP-PRISMA will work with seed company or input dealers and local government representatives to promote knowledge of cultivation techniques. Vegetable farming practices to be introduced may include the use of good seed, good land preparation, sowing and transplanting, and maintenance of crops (fertilisation and crop protection). Activities aimed at increasing productivity may involve: (1) supporting promotion of suitable, good quality vegetable seed, (2) supporting information provision to farmers through extension services, public services, religious figure, and involvement of seed retailers, and (3) supporting farmer capacity building to encourage good vegetable farming cultivation practices.
- **Create a vegetable supply management system.** Introduction to better planting schedules and availability of information about estimated harvest times will help provide farmers with some certainty about which vegetables can be sold when. Similarly, an improved vegetable collection system, accompanied by improved transportation and distribution services will assist farmers in reducing costs, with a resultant increase in income.
- **To create this system, AIP-PRISMA will work with farmers and input dealers**, as these are the principal market actors. Farmers thus will be introduced to a new supply management system which is in line with improvements to the production side.
- **Promote the provision of harvest and post-harvest handling information services.** The ability to harvest their vegetable crops appropriately can give farmers greater chances of having good quality produce; at the same time, better post-harvest practices, equipment and technologies can reduce or prevent deterioration in the quality of vegetable. Meanwhile, appropriate post-harvest handling is important for reducing impurities as well as for minimising losses during transportation. The use of quality seed necessitates the use of specific agro-inputs; these will be promoted to the farmers along with certified seed use, as part of good agricultural practice.

Progress and signs of systemic change

- GAP and Quality Seed information has been disseminated by 5 Product Promotors of EWINDO in 10 districts - Papua and West Papua through daily visits, demoplot establishment, exchange visits for farmers to farmer, socialization, farmer field day, and expo.
- There is a limit of field staff/product promotors' availability and the extent of their geographical work scope due to widely spread out villages/settlements. To incorporate the role of change agents (influential religious figure, head of village, retailers, govt. extension service, and local military) to disseminate the information on seed and GAP, EWINDO supports strengthening these change agents' capacity to deliver information regarding seed and GAP in a joint demo plot.
- The Government is working with private sector partners to provide GAP and good quality seeds information: 58 Public Extension Services workers are involved in EWINDO activities and establish their own demo plots through EWINDO`s assistance, so in the future they can provide appropriate GAP and Quality Seeds to farmers.
- There are 12 Change Agents (Influencers) that promote Good Quality Seed and Good Agricultural Practices to farmers in their area with technical assistance from EWINDO and YBTS.
- EWINDO is committed in expand new intervention areas, such as: Fakfak and Wamena and YBTS is committed in expand in a new area, Nabire
- EWINDO and YBTS link farmers to new market opportunities due to this intervention, for example, YBTS through EWINDO has linked a new potential retailer in Arfak Mountain to a dealer in Manokwari. EWINDO marketing will cover the Arfak area in Semester 2, 2017 after YBTS moves into Nabire

Contribution of public programs

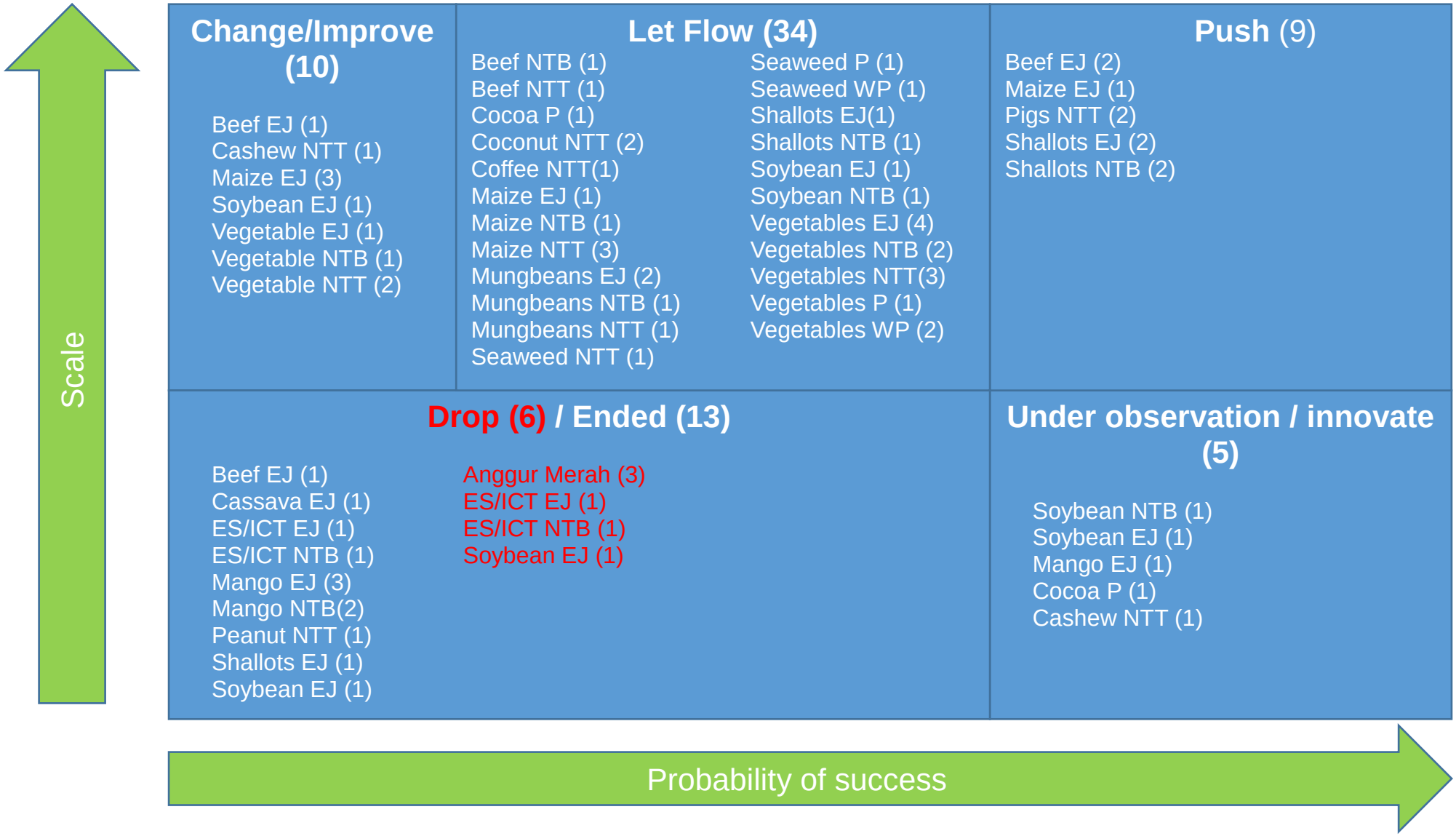
Especially in Arfak Highland, the local government is involved in the facilitation of transportation and a dormitory for private extension worker who provide initial extension services to farmers, as well as assistance to public extension workers. In other areas, comparing with PAJALE (paddy, maize, and soy-bean) farming, vegetables farming is not a top priority for the government. However, in several areas where irrigation is not supportive for PAJALE farming, government does put some effort in establishing demo plots for vegetables farming, i.e. chili and tomatoes. The Government plans to train some extension service workers specifically for vegetables farming along with our partner EWINDO.

During the last semester, the Provincial Government and Governments in Sorong, South Sorong, Merauke, Manokwari and Arfak Mountain started to distribute Panah Merah seed (using subsidy program) instead of other brands. EWINDO has been linking governments to EWINDO-Panah Merah dealers in each district. The Government at a village level through BUMDES started to allocate their budget for build retailers in their villages, and the Head of Regency in Arfak Mountain has given his support in agri-inputs (hand tractor) to 3 lead farmers in the regency. Freeport, through its CSR Program, is planning to co-operate with EWINDO in promoting GAP and good quality seed to farmers in their area.

Annex 2 – SAFIRA private sector partners

Partner	Type	Activities	Target group/entity	Participants
Bank Andara	Wholesale bank	Hiring and briefing consultant for credit scoring and loan monitoring	International consulting company	5
		Piloting of and training on Credit Scoring System	BPR Pesisir Akbar	6
		Agreement on input supply for farmers	SMEs / Syngenta retailer	3
		VCF training	Bank Andara staff and 7 BPRs	25
Bank Sinarmas	Private bank	VCF training	Sinarmas staff	75
		Hiring and briefing consultant	International consulting company based in Indonesia	1
		Training on product knowledge and SOP of loan for cattle fattening	Sinarmas staff	20
		Agreement on cattle fattening with intermediary service providers	SMEs	3
		Promotion on loan for cattle fattening	Farmer	48
Bank BRI	State-owned commercial bank	VCF training	Staff	20
		Hiring and briefing consultant	Local consulting company (EJ)	1
		Training on livestock management	Staff	TBC
CU Sawiran	Credit Union	Hiring consultant on building loan monitoring dashboard and mobile loan monitoring apps	national consulting company	1
Bank NTB	Provincial Development Bank (state owned bank)	As of now, the sole activity is providing loan for maize farmers due to advise from SAFIRA		-
Syngenta	Agribusiness	Hiring a consultant to conduct market analysis for rice EJ	National consulting company	1
PT BISI International	Agribusiness	Hiring consultant for YARO financing model	National individual consultant	1
		Training on YARO module	BISI staff	3
		Training on loan administration tool	BISI staff	2
Bank NTT	Provincial Development Bank (state owned bank)	MoU has been agreed but activities has yet to implement		
Bank BTPN	State-owned commercial bank	VCF training	BTPN staff	22
Bank Jawa Barat	Provincial Development Bank	VCF training	Bank staff	29
Cooperative Association of Maumere (Puskopdit Maumere)	Secondary cooperative	VCF training	Association members (credit unions)	41
Cooperative Association of Ruteng (Puskopdit Ruteng)	Secondary cooperative	VCF training	Association members (credit unions)	33

Annex 3 – PRISMA QMT results July 2017



Annex 4 – PRISMA portfolio development plan

		Actual - cumulative Per 2017S1		Actual - semester	Projection - semester	Projection - semester
Sub-Sector		New & existing interventions (cumulative)		Portfolio development Y17S1 (new interventions)	Portfolio development Y17S2	Portfolio development Y18S1
		Number of interventions with contract - actual	Targeting Outreach Up to 2018	New contracts and contract extensions Actual	New contracts and contract extensions	New contracts and contract extensions
Anggur Merah-NTT	3AH	3	388			
Beef-EJ	1BF	3	11.059		1	
Beef-NTB	2BF	1	1.549			
Beef-NTT	3BF	1	2.265		1	
Cashew-NTB	2CW	1	1.387			
Cashew-NTT	3CW	2	2.530		1	
Cassava-EJ	1CA	3	643			
Cassava-NTT	3CA	1	-			
Cassava-PA	4CA		-			
Cocoa-PA	4CO	2	959	1		
Coconut-EJ	1CT	1	431			
Coconut-NTB	2CT	1	-			
Coconut-NTT	3CT	1	6.060			
Coffee-EJ	1CE	0	156			
Coffee-NTT	3CE	3	10.258	1		
Extension Services-EJ	1ES	1	2.160		1	
Extension Services-NTB	2ES	1	-		1	
Extension Services-NTT	3ES		-			
Feed-NTT	3FD	1	-			
Fish-EJ	1FH	2	6			
Irrigation-EJ	1IN	1	-			
Maize-EJ	1ME	5	36.672	1	1	
Maize-NTB	2ME	2	5.404	1		
Maize-NTT	3ME	4	38.675		5	
Mango-EJ	1MO	4	5.899	2		
Mango-NTB	2MO	3	1.522	2		
Mungbean-EJ	1MN	4	16.067	1	1	

		Actual - cumulative Per 2017S1		Actual - semester	Projection - semester	Projection - semester
Sub-Sector		New & existing interventions (cumulative)		Portfolio development Y17S1 (new interventions)	Portfolio development Y17S2	Portfolio development Y18S1
		Number of interventions with contract - actual	Targeting Outreach Up to 2018	New contracts and contract extensions Actual	New contracts and contract extensions	New contracts and contract extensions
Mungbean-NTB	2MN	1	694			
Mungbean-NTT	3MN	1	1.140			
Nutmeg-P	1NG		-			
Peanut-EJ	1PT	1	5.150		1	
Peanut-NTT	3PT	1	2.182		1	
Pig-NTT	3PG	3	90.905	1		
Seaweed-NTT	3SD	1	3.969		2	
Shallots-EJ	1ST	4	7.053	3	1	
Shallots-NTB	2ST	3	7.177	2		
Soybean-EJ	1SN	6	23.759			1
Soybean-NTB	2SN	3	12.161		2	
Tomato-EJ	1TO		-			
Vanilla-PA	4VA		-			
Vegetable-EJ	1VE	3	33.039	1	2	
Vegetable-NTB	2VE	3	5.350	1		
Vegetable-NTT	3VE	4	5.505	2	2	
Vegetable-P	4VE	1	1.643			
Vegetable-WP	5VE	3	2.290			
Seaweed-WP	5SD		1.272		1	
GOI-EJ	1GI		2.590		1	
GOI-NTB	2GI		2.025		1	
GOI-NTT	3GI		117		1	
GOI-PA	4GI		100		1	
GOI-WP	5GI		244		1	
Dana Desa-EJ	1DA		1.050		1	
Dana Desa-NTT	3DA		168		1	
Crop Protection-P	4CN		470		1	
Total		**89**	**354143**	**19**	**32**	**1**

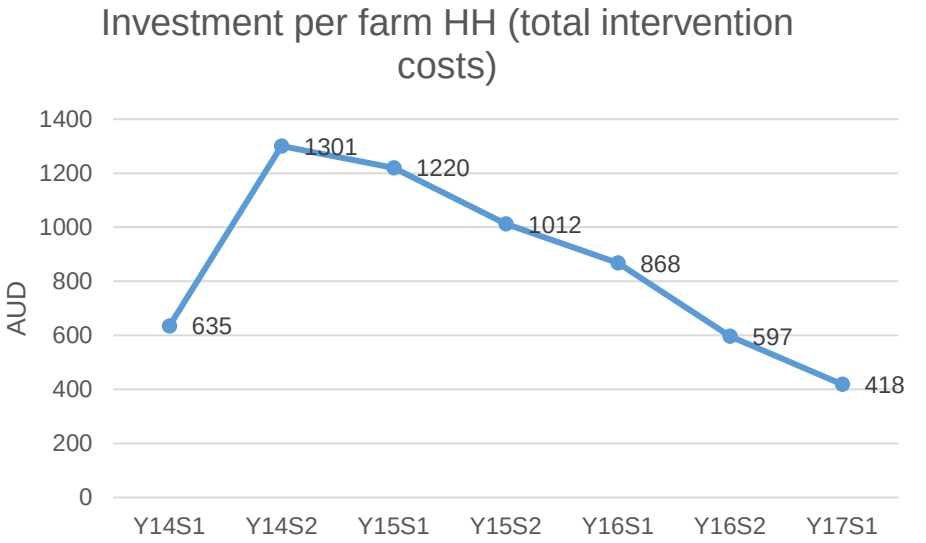
Annex 5 – PRISMA projections until December 2017 (excluding pipeline)

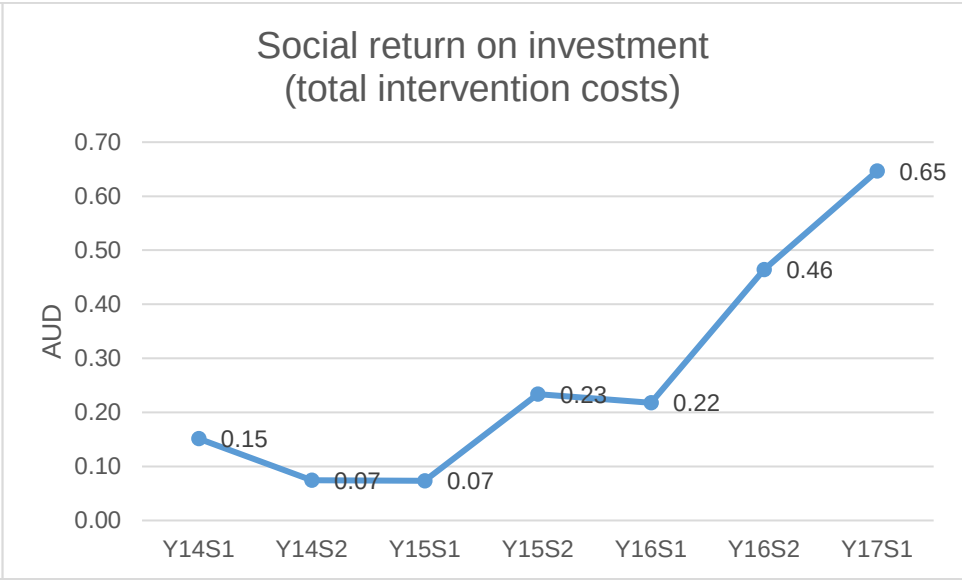
		Projection 2017 S2 (Jul - Dec 2017)					Projection 2018 S1 (Jan - Jun 2018)				
Sub-Sector	Number of Intervention	Access 2017S2	User 2017S2	Outreach 2017S2	Outreach $2 2017S2	Outreach $2.5 2017S2	Access 2018S1	User 2018S1	Outreach 2018S1	Outreach $2 2018S1	Outreach $2.5 2018S1
Anggur Merah-NTT	3	551	208	70	50	64	450	0	0	0	0
Beef-EJ	3	13050	4530	1765	654	1264	13400	696	375	149	279
Beef-NTB	1	6820	2046	512	205	332	0	100	966	386	628
Beef-NTT	1	2670	441	224	134	194	0	1995	179	107	156
Cashew-NTB	1	0	0	0	0	0	0	0	0	0	0
Cashew-NTT	2	2620	1692	0	0	0	0	524	1400	579	951
Cassava-EJ	3	0	0	0	0	0	800	0	0	0	0
Cassava-NTT	1	0	0	0	0	0	0	0	0	0	0
Cocoa-PA	2	820	325	80	60	74	1520	430	505	76	93
Coconut-EJ	1	0	0	0	0	0	0	0	0	0	0
Coconut-NTB	1	0	0	0	0	0	0	0	0	0	0
Coconut-NTT	1	0	0	0	0	0	0	1292	600	240	384
Coffee-NTT	3	3550	0	0	0	0	0	0	0	0	0
Extension Services-EJ	1	0	0	0	0	0	0	0	0	0	0
Extension Services-NTB	1	0	0	0	0	0	0	0	0	0	0
Feed-NTT	1	0	0	0	0	0	1980	0	0	0	0
Fish-EJ	2	0	0	0	0	0	26625	0	0	0	0
Irrigation-EJ	1	0	0	0	0	0	0	0	0	0	0
Maize-EJ	5	36708	10802	7871	4081	6484	21600	8487	5941	2555	4456
Maize-NTB	2	4500	0	0	0	0	0	3480	2127	1276	1510
Maize-NTT	4	6208	5299	3652	2593	3396	3030	0	0	0	0
Mango-EJ	4	780	0	0	0	0	70940	495	319	115	220
Mango-NTB	3	0	0	0	0	0	0	214	150	58	106
Mungbean-EJ	4	0	0	0	0	0	2520	1800	1440	648	1195
Mungbean-NTB	1	0	0	0	0	0	1000	367	294	132	244
Mungbean-NTT	1	0	0	0	0	0	0	800	480	288	432
Peanut-EJ	1	0	0	0	0	0	0	0	0	0	0
Peanut-NTT	1	255	0	0	0	0	0	0	0	0	0
Pig-NTT	3	91600	19205	15364	5968	10140	3600	31438	23081	8916	15233
Seaweed-NTT	1	0	0	0	0	0	0	0	0	0	0
Shallots-EJ	4	7261	500	250	153	168	2660	4600	2709	1653	1815
Shallots-NTB	3	5300	833	525	221	357	4380	2955	1103	463	750
Soybean-EJ	6	330	278	310	89	130	55	500	353	98	141
Soybean-NTB	3	450	1627	1343	617	1008	9056	1763	1410	647	1058
Vegetable-EJ	3	23048	2551	1761	808	1056	2828	14089	9305	4210	5676
Vegetable-NTB	3	4912	641	488	209	342	3729	3201	2349	1042	1644
Vegetable-NTT	4	2267	132	86	48	60	27044	2789	1932	827	1106
Vegetable-P	1	1500	591	473	355	402	894	975	780	585	663
Vegetable-WP	3	2196	837	561	458	502	28800	1423	1147	876	985
Total	89	217.396	52.538	35.335	16.703	25.973	226.911	84.413	58.945	25.926	39.725

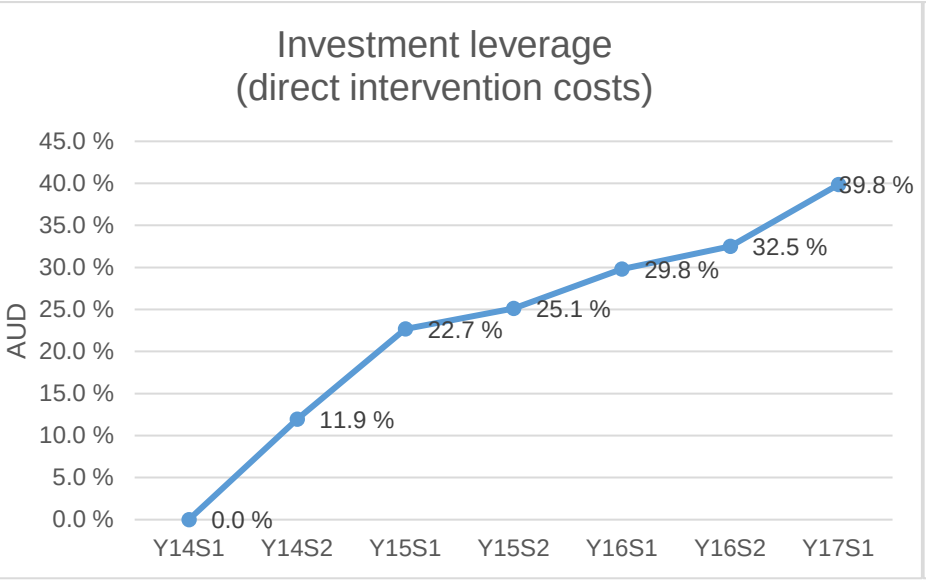
Annex 6 – PRISMA semester outreach breakdown (July 2017)

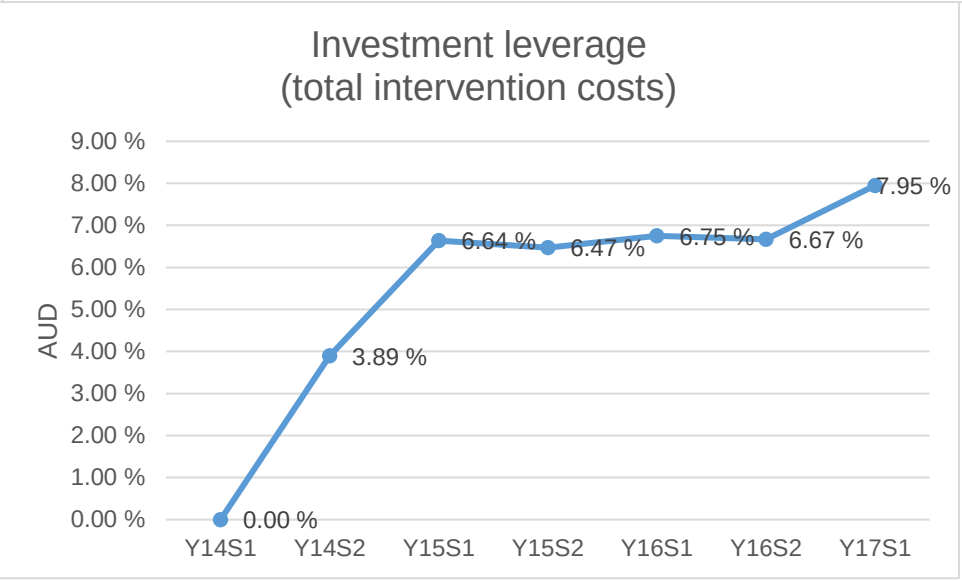
Intervention Code	Intervention Name	Cumulative Actual	Y17S1 Actual	Y17S2 Projection	Y18S2 Projection
1MEA	Maize AHSTI	8.127	1.818	2.068	910
1CAA	Access to GAP and Fertilizer	643	-	-	-
1SNB	Certification and Nurseries	4.035	513	-	-
1SNA	Developing Commercial Market	8.293	5.404	-	823
2CWA	Pest Control and GAP Services	1.387	-	-	-
1CTA	Organic Certif - Coconut Sugar	431	-	-	-
1FHA	Fish Cage Farming	6	-	-	-
1MOA	Mango EJ Syngenta	5.580	1.142	-	-
2MOA	Mango NTB Syngenta	1.372	711	-	-
3PGA	Pig Rearing	1.118	-	-	-
1PTA	Good Quality Seed	101	-	-	-
3SDA	Seaweed UD Alga	630	-	-	-
3CEA	Coffee GAP	4.598	-	-	-
3CEB	Decentralized Processing	2.212	-	-	-
2STA	Shallots EWINDO	2.404	1.767	525	1.969
2BFA	Commercial Feed	71	71	512	-
3CWA	Cashew Peduli Kasih	423	423	-	-
1BFA	Beef Feed WU	834	460	-	-
1BFB	Beef Feed PKM	375	32	500	1.650
3PTA	Peanut Seeds	101	-	-	-
3MEB	Maize Nurseries	7.596	6.235	1.280	2.394
3MEA	Maize YMTM	2.508	-	2.186	3.189
1STA	Shallots SPILT	325	325	-	-
2SNA	BASF Soy Doctor Program	763	763	209	-
3MED	Stimulating market of OPV Seed	4.081	-	-	-
3BFA	Beef Lamtoro	65	65	224	1.197
3CWB	Quality Inputs and Tools	288	288	-	419
3PGB	Decentralized feed for pig	19.329	13.591	12.964	15.013
Total		**77.696**	**33.608**	**20.468**	**27.564**
Target Cumulative - Trajectory		**68.644**			
Actual Cumulative		**77,696**			
Actual Semester			**33,608**		

Annex 7 – PRISMA value for money ex-post until May 2017









Annex 8 – PRISMA private sector partner details

PRISMA partner details

		Partners' Details
Soybean EJ and NTB	**Intervention 1**	**Promoting commercially certified seed**
	Partners	Mr. Sugito (UD Karya Tani)
	Description	Mr Sugito currently runs a nursery business and has certificate from BLPP. He currently has 260 ha with 1,000 nursery farmers supplying seeds that he sells to government agencies and also to farmers.
	Partners' Rationale	He would like to expand his nursery business to 1,000 ha with 4,000 contract nursery farmers because demand remains high. Farmers on a 0.25 ha farm can only obtain 2kg of subsidized seed compared to the 10 kg needed. Hence, there is a substantial demand for soybean seed in the commercial market. Mr. Sugito will work with farmers currently working on rice nursery cultivation. These farmers will be his marketing and distribution channels.
	Partnership Roles	PRISMA will help Mr. Sugito with the marketing of non-subsidized soybeans seeds in the commercial market. PRISMA will also help create distribution channels for Mr. Sugito by identifying the ISP (nursery contract farmers) and/or seed retailers and also prepare marketing tools for the ISPs.
	Intervention 2	**Improve certification procedures for soybean seed**
	Partners	East Java Local Government Agencies
	Description	The local government of East Java has a mandate to provide certified soybean seed. Several institutions are involved, such as BBI (a provincial government nursery) producing foundation seed, Balitkabi (a national agency) that produces breeder seed/ basic seeds, BPSB (a provincial agency) that issues certification, BPPP (a national agency) that trains farmers in nursery skills. The certification process needs to improve to increase efficiency and reduce waiting periods.
	Partners' Rationale	Due to the lack of nursery facilities in Sampang, the Sampang Department of Agriculture (*Dinas Pertanian*) has taken the lead to establish new nurseries. The target is 6-22 nurseries, depending on the season.
	Partnership Roles	PRISMA will help facilitate the Sampang and Trenggalek Department of Agriculture to coordinate the relevant agencies and develop capacity for PPL (extension).
	Intervention 3	**Improve dissemination of new soybean varieties**

	Partner 1	Badan Tenaga Nuklir Nasional (BATAN)
	Descriptions	BATAN is a government research agency that has mandate to carry out government duties in the field of research, development and utilization of nuclear science and technology in accordance with the provisions of legislation. The research, development and utilization of nuclear science and technology in Indonesia is directed as much as possible for the welfare of the Indonesian people.
	Partners' rationale	One of the tasks of BATAN is to develop agricultural varieties that have competitiveness and can improve agricultural productivity in Indonesia. One of the commodities developed by BATAN is soybean. However, BATAN has limitations in producing and disseminating their products in large scale, resulting to only small number of soybean farmer benefited from this technology There is no private sector involvement in dissemination of commercial and labelled soybean seed and government R & D has limited capacity in dissemination and production of new soybean seed varieties. BATAN has capacity to produce new and high yield soybean seed and EWINDO has capacity and network to produce/multiply new soybean seed and promote it to farmers.
	Partnership Roles	PRISMA's role is to support BATAN to scale up the production and dissemination of their product by connecting BATAN to seed producers so that many soybean farmers can benefitted from this intervention
	Partner 2	PT East West Seed Indonesia (EWINDO)
	Descriptions	EWINDO is an integrated vegetable seed company in Indonesia which produces its seeds through plant breeding, and market its products for Indonesian farmers with the brand CAP PANAH MERAH, since more than two decades ago.
	Partners' rationale	EWINDO is highly interested to venture out their business to soybean seed production and distribution. Their mission to provide better seeds for smallholder farmers and increase their income, is in line with PRISMA's goals. EWINDO also has a well-established distribution channel in Indonesia, which will aid PRISMA in reaching thousands of soybean farmers, particularly in Eastern Indonesia.
	Partnership Roles	PRISMA's role is connecting EWINDO to seed resource institutions to identify existing and potential new high yielding soybean varieties. PRISMA will support EWINDO in conducting a market research in order to identify customer segmentation, area focus, and varieties to produce. PRISMA will also support EWINDO with experts in production, promotion and storage of soybean seed.
	Intervention 4	**Increase productivity by promoting GAP information through soy doctor**
	Partners	PT. BASF Indonesia
	Descriptions	PT. BASF INDONESIA is a chemical company with broad portfolio including crop protection. The portfolio also includes products for turf and ornamental plants, pest control and public health. PT. BASF INDONESIA Crop Protection division is a

		leading innovator in partnership with farmers to protect and improve crop yields, enabling them to produce high quality food more efficiency.
	Partners' rationale	BASF saw potential market in soybean and has soybean pilot program in Banyuwangi in 2014. From these pilot, farmers are able to increase income until 45%. Meanwhile, BASF has a program called MTA (Mitra Tani Agri-Aexcellent) for other crops to reach farmers through cooperation with lead farmers or head of group farmers. BASF aims to reach as many farmer as possible with minimum operational spending. MTA program did not work well due to lack of planning and management.
	Partners Roles	PRISMA support BASF to improve their program and be the first agro-input company focuses on soybean market by introducing new program called "soy doctor". PRISMA support for soy doctor implementation include: 1. Support BASF in developing better program management including soy doctor selection criteria, proper incentive and reward scheme, training plan, and monitoring plan 2. Support capacity building for soy doctor and BASF staffs to be able to deliver GAP information to farmer Support BASF to identify location for intervention where there is significant number of user
	Intervention 5	**Alternative Channel of Certified Soybean Seeds (ACCESS) in East Java**
	Partners	PT. Karisma Indoagro Universal
	Descriptions	PT. Karisma Indoagro Universal is a company working in distribution of wide range of agriculture products, including seeds, fertilizer, and pesticides. The company has been working with numerous chemical companies, suppliers, and R1 and R2 (retailers) all over districts in East Java.
	Partners' rationale	Partner saw potential market in soybean seed which involve 600,000 of farmers in East Java. Currently most farmers use retained seeds with low and declining yields, and more farmers seek to find commercial good quality seeds in store. This condition encourages PT. KIU to become the first distributor selling commercial certified seeds in East Java.
	Partnership Roles	In this intervention, PRISMA links soybean nurseries with limited access to market to be the supplier of good quality certified soybean seeds to PT. Karisma Indoagro Universal that will distribute it to the agriinput stores R1/R2 (retailers) in district level in East Java. 1. PRISMA supports the partner in determining the location of potential district to sell the soybean seeds, based on the seasonality. 2. PRISMA supports the nurseries by upgrading their capacities to be able to sell their seeds commercially, in term of packaging. PRISMA also supports the promotion of certified seeds to the farmers.
	Intervention 6	**Alternative Channel of Certified Soybean Seeds (ACCESS) in NTB**
	Partners	CV. Agro Makmur Mandiri

	Descriptions	CV. Agro Makmur Mandiri is a company working in distribution of wide range of agriculture products, including seeds, fertilizer, and pesticides. The company has been working with numerous chemical companies, suppliers, and R1 and R2 (retailers) all over districts in Bima and Dompu, NTB.
	Partners' rationale	Partner saw potential market in soybean seed which involve 27,000 of farmers in NTB. Currently most farmers use retained seeds with low and declining yields, and more farmers seek to find commercial good quality seeds in store. This condition encourages CV. AMM to become the first distributor selling commercial certified seeds in NTB.
	Partnership Roles	In this intervention, PRISMA links soybean nurseries with limited access to market to be the supplier of good quality certified soybean seeds to CV. Agro Makmur Mandiri that will distribute it to the agriinput stores R1/R2 (retailers) in district level in NTB. 1. PRISMA supports the partner in determining the location of potential district to sell the soybean seeds, based on the seasonality. 2. PRISMA supports the nurseries by upgrading their capacities to be able to sell their seeds commercially, in term of packaging. PRISMA also supports the promotion of certified seeds to the farmers.
	Intervention 7	**GAP Through Rainbow Ambassadors (Laskar Pelangi)**
	Partners	PT. Rainbow Agroscience Indonesia
	Descriptions	PT. Rainbow Agroscience Indonesia (RAID) is a multinational company started in 2012 in Indonesia. Their Core Values are formulation development of Agrochemicals. RAID owns 100 registrations of chemicals that are repackaged and sold by BASF, Syngenta, Bayer etc in Indonesia. Currently RAID has just started their commercial business in 2015 where they are aiming to be a one stop chemical solution from seed to harvest. Rainbows commercial area in Indonesia are divided into 3 Areas – Sumatera, Jawa and East Indonesia
	Partners' rationale	RAID has an existing project called Pelangi Farmers Group (PFG) where they design and deliver curriculums solely to help farmers increase their yields. Currently they have one for Shallots but they do not have one for soybeans which PRISMA can provide. In addition, since RAID is relatively new in the commercial market, specifically within the East Java province, they saw that entering the market through soybean commodity is a great opportunity to establish their brand name and products in the province.
	Partnership Roles	PRISMA support RAID to improve their "Pelangi Farmer Group" program under the name "Laskar Pelangi". PRISMA support for Laskar Pelangi by: 1. Support partner in developing better program management including Laskar Pelangi selection criteria, proper incentive and reward scheme, training plan, and monitoring plan 2. Support capacity building for Laskar Pelangi to be able to deliver GAP information to their peer farmers Support RAID to identify location for intervention where there is significant number of users

Maize EJ	**Intervention**	**Promoting hybrid seeds**
	Partner 1	PT Asian Hybrid Seed Technologies Indonesia (PT AHSTI)
	Description	PT AHSTI has developed seed stock for dry conditions and piloted cultivation in Gunung Kidul, Yogyakarta. The company is experienced in selling hybrid seed in Sumatra and Sulawesi.
	Partners' Rationale	The company wants to expand their seed market beyond mainland Java island to neighbouring Madura island. To realize this vision, they are willing to invest in demonstration plots and good agricultural practices (GAP) capacity building for maize farmers in Madura.
	Partnership Roles	PRISMA supports PT AHSTI develop distribution channels (sales agents/retailers) in Madura and promote and distribute their seeds among target groups.
	Partnership Roles	PRISMA supports PT AHSTI develop distribution channels (sales agents/retailers) in Madura and promote and distribute their seeds among target groups.
	Partner 2	Dinas Pertanian Tanaman Pangan Kabupaten Sumenep (District Agriculture Office/DAGRIO) of Sumenep
	Description	DAGRIO is one of Sumenep District Government Agencies that have authority to plan, implement and evaluate any activities to increase agriculture production and productivity. The agency is operating based on Regional Regulation Number 16/2008 on the Establishment of Regional Agencies Organization. DAGRIO is an implementing unit of regional autonomy in the area of agriculture and staple crops within the territory of Sumenep District. The agency is led by a Head of Agency which is selected, work and responsible to Head of District (Bupati). Basically, the Head of DAGRIO receives mandate from Bupati to implement District Government's authority in the field of agriculture and staple crops through planning, implementation and evaluation activities.
	Partners' Rationale	The company has responsibility to support national government in achieving agriculture commodities production and productivity targets, including maize. However, the role of DAGRIO in poverty reduction is limited and they are willing to improve their hybrid maize promotion approach to better serve the poor farmers while strengthening hybrid maize system in Madura. On the other hand, the DAGRIO also has a vision to increase the percentage of maize farmers who using the hybrid seed to 60% at least that can leverage the local economic development.
	Partnership Roles	PRISMA support DAGRIO to improve coordination with private sector to avoid negative impact of annual hybrid maize subsidy to the existing hybrid maize market system in Madura, particularly in Sumenep as well as conducting massive social media campaign to change the mindset of the farmers
	Partner 3	PT BISI International Tbk
	Description	PT BISI International,Tbk is the largest producer of hybrid seeds in Indonesia, and a major Indonesian producer of pesticides and a distributor of fertilizer.

		The Company was founded by the Charoen Pokphand Group, the largest producer of feed in Indonesia. Today, BISI maintains a nationwide operational footprint for research and development, production, marketing, distribution and sales.
	Partners' Rationale	The company wants to expand their market to maize farmers who still use local seeds, and improve their promotional activities, including the capacity building to farmers in Madura. The company also wants to cooperate for conducting research.
	Partnership Roles	PRISMA support BISI re-vitalize their BISI Club (lead farmer organization consisting of 10-15 lead farmer which important to disseminate the information, knowledge and information of Hybrid Maize Seed and its GAP), and conduct plot research. PRISMA also support BISI promote hybrid maize seed and GAP in Madura.
	Partner 4	PT Syngenta Indonesia
	Description	Syngenta is one of the world's leading companies that raise up their purpose in "Bringing Plant Potential to Life". Through product development with world-class science, Syngenta has an aim for increasing customer's productivity, protect the environment and improve health and quality of life. Syngenta has wide ranging agro-input products including hybrid maize seed.
	Partners' Rationale	Syngenta is aiming to increase its hybrid maize product penetration in Madura. Business Development team in Syngenta envision to have an improvement in its marketing strategy for Madura market and do some research regarding the impact of the strategy.
	Partnership Roles	Syngenta need a fresh-eye to take a look and measure the impact of their improved marketing strategy. It also need a better understanding about Madura market as the basis for them in the future strategy improvement. This is where PRISMA came in to give a support, particularly in providing essential information through market research and program evaluation.
	Partner 5	PT Du Pont Indonesia
	Description	DuPont is a science company dedicated to solving challenging global problems, meeting urgent needs in agriculture, nutrition and health, bio-based industrials, electronics and communications, advanced materials, and safety and protection. In the agriculture business line, one of their biggest business is hybrid seed.
	Partners' Rationale	They have an objective to improve the quality of maize farmers in Indonesia with a program name "Indonesia Panen Melimpah" and they realize that could not get a fast return in their investment in Madura (and other local maize farmers).
	Partnership Roles	PRISMA supports Du Pont mainly to re-enter Madura hybrid maize market, through portion in promotional activities and capacity building of their sales agents (Front Liners) and lead farmers partners (MAP). In addition, PRISMA also presents gender aspect internalization through support in hiring female Front Liners to target the female maize farmers market.
Maize NTB	**Intervention**	**Introducing better maize cultivation practices through YARO model**
	Partner 1	PT. BISI International

	Description	PT. Bright Indonesia Seed Industry (PT. BISI International) is a subsidiary company of Charoen Pokphand Group, a Thai feed mill company. PT BISI International mainly sell maize, paddy, and vegetable seeds along with pesticides and herbicides products in Indonesia and to other countries since 1983. BISI has one of the largest maize seed market share in Indonesia.
	Partners' Rationale	A commitment has been stated by the partner that they agreed to reach 3,000 farmers with PRISMA's facilitation and to expand the upcoming intervention in other provinces. BISI also stated that they are willing to hire more resources (if needed) to support the intervention.
	Partnership Roles	PRISMA, along with SAFIRA, supports PT. BISI to develop a new system of in-kind credit to farmers, as well as developing capacity building modules and events to reach more farmers in North Lombok, West Lombok, East Lombok, Central Lombok.
Maize NTT	**Intervention**	**Promoting composite seeds**
	Partner 1	CV INTAN
	Description	CV INTAN has produced composite seed and stock for dry conditions and piloted cultivation in Kupang District, West Timor-NTT. Since 2008, CV INTAN had engaged in paddy and maize seed. Seed producing effort is made to meet the demand of local government. Since 2013, began to expand its business through the free market. Composite maize seed varieties produced are LAMURU purple and blue label.
	Partners' Rationale	The company wants to expand their seed market around NTT province. To realize this vision, they are willing to invest in promotion include demonstration plots and good agricultural practices (GAP) capacity building for maize growers in Timor island.
	Partnership Roles	PRISMA supports CV INTAN in production of composite seed and develop sales and distribution channels (sales agents/retailers) in TTS and Kupang District and promote and distribute their seeds among target groups.
	Partner 2	Kokdale
	Description	Kokdale has produced composite seed and stock for dry conditions and piloted cultivation in Kupang District, West Timor-NTT. Since 2005, Kokdale has engaged in paddy and maize seed. Seed producing effort is made to meet the demand of local government. Since 2014, began to expand its business through the free market. Composite maize seed varieties produced are LAMURU Purple and Blue label.
	Partners' Rationale	The company wants to expand their seed market around NTT province. To realize this vision, they are willing to invest in promotion include demonstration plots and good agricultural practices (GAP) capacity building for maize growers in Timor island.
	Partnership Roles	PRISMA supports Kokdale in production of composite seed and develop sales and distribution channels (sales agents/retailers) in TTS and Kupang District and promote and distribute their seeds among target groups.
	Partner 3	CV Tiga Putri Mandiri

	Description	CV Tiga Putri Mandiri has produced composite seed and stock for dry conditions and piloted cultivation in Kupang District, West Timor-NTT. Since 2005, CV Tiga Putri Mandiri had engaged in paddy and maize seed. Seed producing effort is made to meet the demand of local government. Start on 2015, began to expand its business through the free market. Composite maize seed varieties produced are LAMURU Purple and Blue label.
	Partners' Rationale	The company wants to expand their seed market around NTT province. To realize this vision, they are willing to invest in promotion include demonstration plots and good agricultural practices (GAP) capacity building for maize growers in Timor island.
	Partnership Roles	PRISMA supports CV Tiga Putri Mandiri in production of composite seed and develop sales and distribution channels (sales agents/retailers) in Belu and Malaka District and promote and distribute their seeds among target groups.
	Partner 4	Yayasan Mitra Tani Mandiri (YMTM)
	Description	Yayasan Mitra Tani Mandiri (The Foundation for Partnership with Independent Farmers) was found in 1997 with the aims to help communities to expand its local capacity for economic development by increasing competitiveness, farm productivity and providing alternative source of households' income on sustainable agricultural systems. It has two main activities: 1) project development/ implementer for donors or as co-facilitators, 2) business unit/partner for the intervention or market actor include service provider;
	Partners' Rationale	The business unit of YMTM wants to develop their seed market around NTT province. To realize this vision, they are willing to invest in production and promotion include demonstration plots and good agricultural practices (GAP) capacity building.
	Partnership Roles	PRISMA will support YMTM business unit to produce and distribute quality maize seeds in the region and also conduct promotional activities for the farmers so that the farmers get proper knowledge on maize cultivation. For seed production, YMTM depends on a number of seed growers who produces maize as well in addition to seed production using their retained OPV seeds. YMTM engages a number of seed distributors and retailers for distributing the seeds in those areas and utilize farmer groups for dissemination.
	Partner 5	Tunas Harapan
	Description	Tunas Harapan is a farmers group consisting of 12 farmers, located in Bipolo village, Kupang. Since 2014, Tunas Harapan farmers group has started its seed nursery business. They started by producing paddy and maize seed to fulfill local government subsidized seed procurement. In 2015, Tunas Harapan sold their maize OPV seed to Flores and Sumba for the government market. They also started to sell maize OPV seed for free market although still in limited amount. The nursery average seed production is 2.5 – 3 MT/Ha.
	Partners' Rationale	Tunas Harapan wants to develop their maize seed business market around NTT province. To realize this vision, they are willing to invest in production and promotion include demonstration plots and good agricultural practices (GAP) capacity building for farmers.
	Partnership Roles	PRISMA supports Tunas Harapan to improve the quantity and quality in producing maize OPV seed. The intervention also supports partners to develop their sales channels (sales agents/retailers) in Kupang, promote the use of OPV seed along with good cultivation practice knowledge dissemination.
Mungbean EJ	**Intervention 1**	**Production and Distribution of Certified Mung Bean Seeds**

	Partner 1	PT. East West Seed Indonesia (EWINDO)
	Description	PT. EWINDO is an integrated vegetable seed company in Indonesia which produces its seeds through plant breeding, and market its products for Indonesian farmers with the brand CAP PANAH MERAH, since more than two decades ago. PT. EWINDO is a
	Partners' Rationale	PT. EWINDO is highly interested to venture out their business to mung bean seed production and distribution. Their mission to provide better seeds for smallholder farmers and increase their income, is in line with PRISMA's goals. PT. EWINDO also has a well-established distribution channel in Indonesia, which will aid PRISMA in reaching thousands of mung bean farmers, particularly in Eastern Indonesia.
	Partnership Roles	PRISMA will support PT. EWINDO in conducting a market research in order to identify customer segmentation, area focus, and varieties to produce. PRISMA will also facilitate PT. EWINDO in meeting seed resource institutions, such as BALITKABI and BATAN, to obtain the rights to distribute the foundation seeds.
	Intervention 2	**Empowering Female Farmers through PKK Group**
	Partner 2	CV. Semi
	Description	CV. Semi is a Purwodadi-based paddy, maize, and vegetable nursery and agri-input products distributor.
	Partners' Rationale	CV. Semi is highly enthusiastic to enter the mung bean market, seeing the potentials and demand in the market.
	Partnership Roles	PRISMA supports CV Semi suppliers to produce, distribute, and promote quality mung bean seeds through: • Connecting CV Semi Purwodadi to BALITKABI in order to gain technical knowledge of mung bean seed production PRISMA also supports CV. Semi in identifying the right distributors for them (e.g female cooperatives, farmer groups and retailers) to promote mung bean seeds to farmers in East Java.
Coffee NTT	**Intervention 1**	**Improving Market Access and Increasing the Productivity of Arabica Coffee in Flores**
	Partner 1	PT Indokom Citra Persada (Indokom)
	Description	Indokom is a coffee exporting company founded in 1996. The company has offices in Lampung province and Sidoarjo, East Java province. In 2012, the company exported 70,000 MT to markets in the European Union, Japan, the Middle East and the USA. They have bought coffee from Flores from 2005 and started to buy high quality from 2006. They still sort fro
	Partners' Rationale	In order to increase turnover, the company aims to increase sales of specialty coffee and for that it needs a continuous supply of quality coffee from farmers and reliable management systems.

	Partnership Possibilities	Indokom are concerned to improve the welfare of coffee farmers in Indonesia through providing better price of the good quality coffee, giving technical assistance at post-harvest and in processing. PRISMA will help Indokom develop a scale up cooperation model based with processor.
	Partner 2	UPK Karya Kasih (Coffee Processor in Ngada)
	Description	UPK karya kasih started their coffee processing unit in 2000 with a non-specialty processing. In 2016, they have sold 100 MT of grade 2 green bean and around 100,000 litre wet parchment to Indokom. They understand that there is a high demand of good quality Arabica coffee and they are keen to cater to i
	Partners' Rationale	In order to increase turnover, the company aims to increase its coffee and improve its quality and market segment of specialty coffee and for that it needs a continuous supply of quality coffee from his farmers member.
	Partnership Possibilities	UPK Karya Kasih is concerned to improve the welfare of coffee farmers in Ngada through providing better price of the good quality coffee, giving technical assistance at post-harvest and in processing. PRISMA will help UPK Karya Kasih to go to broaden market access for good quality coffee.
	Partner 3	UD Karunia (Coffee Processor in East Manggarai)
	Description	Kios Karunia is a small-enterprise developed by Mr. Gaspar Hasan in Golonderu village. He has been trading coffee commodity since 1994. In 2004, with a support from a committed buyer, Komodo Jaya, he started to trade good quality coffee with full-washed method. On the same year, he started to make a business collaboration with Mr. Karolus and Mr. Kornelis. Seeing the prospect of coffee business, Mr. Gaspar bought his own huller machine to produce good quality coffee in 2016. His current capacity reach 200 ton green bean coffee per year.
	Partners' Rationale	In order to increase its turn over, Kios Karunia aims to go to broaden market for high quality coffee and for that they need to improve its quality as well as its good quality coffee supply from their farmers.
	Partnership Possibilities	Kios Karunia is concerned to improve the welfare of coffee farmers in East Manggarai through providing better price of the good quality coffee, giving technical assistance at post-harvest and in processing. PRISMA will help Kios Karunia to go to broaden market access for good quality coffee.
	Partner 4	Agriculture Department of Ngada
	Description	Ngada has become one of famous single origin coffee with its Arabica Flores Bajawa patent name. More than 90% of their coffee are Arabica coffee and now become the star commodity.
	Partners' Rationale	Agricultural department of Ngada has seen PRISMA work in Flores from 2015-2016 and become more interested in the coffee sector. Currently, coffee is one of their main commodity. They put more resources and want to improve coffee productivity and quality. Ngada coffee productivity is around 300kg green bean/HA and target to increase to minimum 700kg green bean/HA.
	Partnership Possibilities	The partnership between PRISMA and the Agricultural Department of Ngada is intended to enhance the effectiveness of government funding with the overall development of the coffee industry. The government fund will be used to support the PRISMA strategy to develop the smallholder’s coffee farmers.

Shallots NTB	Intervention	Shallot EWINDO
	Partners	PT East West Seed Indonesia (EWINDO)
	Description	In order to promote higher quality planting materials in NTB, PRISMA has been working with EWINDO to promote the use of true shallot seed and to develop a market for TSS derivative products such as the Improved Bulbs and Branded Seedlings. The True Shallot Seed, Bulb and Seedling can help farmers to get better yields than the low quality retained Bulb.
	Partners' Rationale	The success of the previous program establishing nurseries using the EWINDO seeds can be strengthened and up-scaled to benefit more male and female small-holder farmers in NTB, and it give more and better options for the farmers. The incentives for EWINDO are, among others, increased market share for seeds in a sustainable way, increased brand awareness (especially in NTB's shallot-producing areas of Bima and Lombok) and the potential to expand to other eastern districts.
	Partnership Roles	PRISMA's roles in this intervention are: 1. Nursery development Newly-established and existing nurseries will buy EWINDO-supplied seed to produce higher quality planting bulbs and seedlings sell them to shallot farmers, either directly or through traders. The incentives for nurseries include improved skills and knowledge, and the assurance and certainty of income. These will increase sales of EWINDO's true shallot seed (TSS), as well as the sale of TSS through input retailers. EWINDO expect through the Nurseries, more farmers will learn how to grow shallots from TSS. PRISMA supports EWINDO with agronomists, training and promotion activities. 2. Promote Improved bulbs and Seedlings to traders and retailers. Demonstrate the profitability of the business to traders and retailers, to encourage them to buy better quality planting bulbs and seedlings then sell them to shallot farmers. Work has already started on this: b. PRISMA supports studies to identify key areas in which to work to develop G0 bulbs. c. PRISMA has selected certain traders and linked them with EWINDO and the nurseries. EWINDO collaborates with these traders and retailers on distributing bulbs and seedlings to farmers. d. Traders are incentivised by the potential of increased income to be obtained by selling improved quality planting bulbs and seedlings at a higher price, creating a price differentiation for good quality planting materials. 3. Develop a partnership model. • Support EWINDO to find a system which works with its distribution channel to sell the planting bulb and seedlings obtained from the company's seed. This could be a franchise model, a trader system, a nursery model or a model otherwise appropriate to the needs of EWINDO. • Support EWINDO to develop a branded bulb and a branded seedling franchise, trader system, and/or another partnership scheme, by providing consultants a) on post-harvest handling, and b) to carry out a trader study to find potential traders.

Mango EJ	**Intervention**	**Mango EJ-NTB Scale up Syngenta**
	Partners	PT Syngenta Indonesia
	Description	Syngenta is an internationally renowned agricultural company that produces and promotes seeds, crop protection products and agricultural solutions in many countries.
	Partners' Rationale	The early flowering technology for mango requires a combination of chemicals: *Cultar*, *Amistartop*, and *Actara*. Syngenta is the supplier of *Amistartop* and *Actara* in Indonesia under patent. *Amistartop* is widely available, as it is used in rice production. *Actara* is used to control insects in mango crops and improve fruit quality. Although *paclobutrazol* is available from many suppliers, Syngenta with its Cultar was the original patent owner and its product is proven to give the best result.
	Partnership Roles	• Even though these products have been available in the marketplace, the combination had not been piloted in Indonesia. Syngenta took on a significant financial risk getting into this market. PRISMA supported Syngenta in piloting their products, primarily through supporting the collectors who tested the combination of chemicals in small-scale trials to see which combinations worked best. Now that the products and the business model are proven, PRISMA will support Syngenta to expand its distribution and promotion. • After working with the pilot for 1.5 years, PRISMA and Syngenta decided to take the intervention to the next level by improving the field practices, such as removing the free samples, and decreasing PRISMA's contribution.
	Intervention	**Mango EJ Scale up Rainbow**
	Partners	PT Rainbow Agrosciences
	Description	Rainbow is an internationally renowned agricultural company that produces and promotes crop protection products and agricultural solutions in many countries.
	Partners' Rationale	Rainbow has just started its operation in Indonesia with a wide range of products. They started as a manufacturer that serves other agro-chemical companies, but has now decided to enter the retail business on its own. They have the necessary chemicals for early flowering technology, which includes *Pazole*, *Fivestar*, *Raincozeb*, *Puntoxtra*, and *Nanofos*. They offer cheaper alternative to the market with wide range of selection under patent.
	Partnership Roles	After working with Syngenta for 1.5 years, PRISMA decided to work with Rainbow who is assessed to have more buy-in, clearer strategy, and more aggressive in penetrating the market for mango.
	Intervention	**Mango EJ-NTB Social Marketing**
	Partners	PISAgro (Partnership for Indonesia's Sustainable Agriculture)

	Description	The Partnership for Indonesia's Sustainable Agriculture (PISAgro) was created in 2011 under the World Economic Forum (WEF).
	Partners' Rationale	The Partnership for Indonesia's Sustainable Agriculture (PISAgro) is one of the most established Country Partnerships, which has strong technical engagement on value chain initiatives from over 30 participating stakeholders across government, international agencies, civil society, and farmer organizations. PISAgro has ten value chain Working Groups, one of them is horticulture, which include pineapple and mango as sub-working group. Working with PISAgro as an association, other working groups or other companies can copy the model for other crops after the intervention is successful.
	Partnership Roles	Private input companies such as Syngenta and Rainbow are on-board with the campaign, as they are the product owner. PISAgro Mango Sub-Working Group is leading the campaign, in which PRISMA, Syngenta, and Rainbow are members. Once farmers will have increased knowledge on EFT, and private input suppliers will recognize the potential profit in the sector, there will be no need for further support from the project.
Shallot EJ	**Intervention 1**	**Shallot SPILT**
	Partner	PT Solusi Bioteknologi Indonesia (Solbi)
	Description	Solbi is a business unit of the SoeGee Group which aims to be a leader in innovative solutions in organic agriculture and as a biotechnology provider. In line with their vision, Solbi is willing to promote pest control technologies to shallot farmers.
	Partners' Rationale	Solbi is willing to invest in the production of pest lamps and provide technical assistance in the form of embedded services, including lamp maintenance, through commercial distribution channels and farmer groups.
	Partnership Roles	PRISMA's roles in this intervention are: • Short assessment for selection of distribution channels • Support in developing an effective business plan Development of a module for distribution channel training.
	Intervention 2	**Shallot Social Marketing**
	Partner	CropLife Indonesia
	Description	CropLife is an association that consist of several multinational chemical pesticide and seed companies in agriculture industry. CropLife has been known for their activities especially in stewardship. They main target is to create awareness of the farmers and change the farmers' behaviour towards the use of agriculture pesticides
	Partners' Rationale	Partner has experience to disseminate information on pest management. They are very interested to spread the Integrated Pest and Disease Management to the shallot farmers, because they found a lot of case of abusing pesticide use which impact

		to the farmers' health and also affecting the quality of the products.If this case happen a lot, public will starting to blame chemical company, because of that CropLife want to prevent that by conducting IPDM social marketing campaign.
	Partnership Roles	PRISMA's roles in this intervention are: • Provide expert to develop IPDM module • Support in developing the campaign by hiring public relation agency • Support in conducting training to build capacity on IPDM
	Intervention 3	**Shallot Nufarm**
	Partner	PT Nufarm
	Description	PT Nufarm Indonesia is a subsidiary of the Australian company, Nufarm Ltd. This company is one of the world's leading crop protection and specialist seeds company. Their manufacturing and marketing operations are located in Australia, New Zealand, Asia, Europe, and Americas.
	Partners' Rationale	PT Nufarm Indonesia has been concerned about unappropriate use of pesticide that leads to pest resistance. They have one innovative product that targeting a specific pest (caterpillar) in shallot crop named "Dipel" with active ingredients: Bacillus Thurigiensis. This products is an IPM compatible product and highly recommended for shallot crop.
	Partnership Roles	PRISMA and Nufarm with the support from IPM experts from Australia develop an IPM scheme and strategy for the shallot farmers. This partnership also encourage farmers to use IPM compatible products by disseminating IPM method through the demo plot, farmers meeting and other promotional event.
	Intervention 4	**Shallot Trial Production EWINDO**
	Partner	PT East West Seed Indonesia (EWINDO)
	Description	EWINDO is the first vegetable seed company, including shallot seeds (TSS), in Indonesia. The products are marketed in Indonesia under the brand "CAP PANAH MERAH".
	Partners' Rationale	The success of the previous intervention between PRISMA and EWINDO in West Nusa Tenggara (NTB) to promote quality shallot seeds (TSS) to shallot farmers, the demand for TSS has increased nationally. Currently, TSS is all imported, with no local production capacity. The demand for TSS has overcome the supply, hence EWINDO is exploring ways to increase their supply by having TSS production trial at several locations in Indonesia and outside Indonesia.
	Partnership Roles	PRISMA supports EWINDO in doing TSS production trial in East Java. This production trial aims to proof the feasibility of locally producing TSS in Indonesia and fulfilling the national demand of TSS. If the production trial proves that locally producing TSS is not feasible, from cost and quality perspective, EWINDO aims to have formal paper of how the trial goes to justify their TSS import volume.

Vegetable EJ / NTB / NTT	**Intervention 1**	**Vegetable Apps EWINDO**
	Partner	PT East West Seed Indonesia (EWINDO)
	Description	EWINDO is the first vegetable seed company in Indonesia. The products are marketed in Indonesia under the brand “CAP PANAH MERAH”.
	Partners' Rationale	EWINDO already has the strong position in the vegetable seed market across Indonesia. To maintain their strong position in the market, they need to know their customers more. Hence, with the application, it will enable EWINDO to collect their customers’ data to craft their sales and promotion strategies.
	Partnership Roles	Mobile app is a new for EWINDO and they don’t have the capabilities to develop the app by themselves. PRISMA supported EWINDO by hiring developer and data scientist STA to develop the app, while EWINDO is focusing on the content of the app. EWINDO is also focusing on the marketing activities for the app throughout their channels.
	Intervention 2	**Vegetable Apps NASA**
	Partner	PT Natural Nusantara (NASA)
	Description	NASA is a national agricultural input company with multi-level marketing sales channel. NASA’s product is an organic product ranging from fertilizer, crop protection, and livestock support products.
	Partners' Rationale	With the multi-level marketing business model, everyone can be agents for NASA’s products. This enables someone with non-agriculture background to join the network. The mobile app developed will be utilized as educational platform to improve agents’ knowledge on agricultural practice.
	Partnership Roles	PRISMA’s roles in this intervention are: • Mobile app development to disseminate information on good agricultural practice • Accelerating bio-inputs introduction to smallholder farmers in the new districts
	Intervention 3	**Vegetable Rainbow**
	Partner	PT Rainbow Agrosciences
	Description	Rainbow is an internationally renowned agricultural company that produces and promotes crop protection products and agricultural solutions in many countries.
	Partners' Rationale	Rainbow has just started its operation in Indonesia with a wide range of products. They started as a manufacturer that serves other agro-chemical companies, but has now decided to enter the retail business on its own. They have the necessary

		chemicals for early flowering technology, which includes *Pazole*, *Fivestar*, *Raincozeb*, *Puntoxtra*, and *Nanofos*. They offer cheaper alternative to the market with wide range of selection under patent.
	Partnership Roles	PRISMA's roles in this intervention are: • Mobile app development to disseminate information on good agricultural practice • Accelerating bio-inputs introduction to smallholder farmers in the new districts
Vegetables NTT	**Intervention 1**	**Vegetable Sumber Tani**
	Partners	UD SUMBER TANI
	Description	UD Sumber Tani, a new input retailer has been built with the support and idea from PRISMA team. The purposes of this intervention are: 1. Establishment of a new agro-input shop that could cover the farmers around district of East Manggarai and neighbouring districts. 2. Availability of extension services of GAP on vegetable production in the served areas. 3. Increase the number of farmer who has knowledge of GAP on vegetable production 4. Information tools of GAP on vegetable production will be available for the vegetable farmers 5. Farm shop / Inputs retailers will have sustain business plan which engages more ISP to optimize the benefits for the farmers' income
	Partners' Rationale	The owner is one of the biggest inter island trader for coffee, cashew, vanilla, tamarind, candlenut, eggs etc and one of the biggest contractor in the area. She sees a big opportunity since currently there is no Input shop in the East Manggarai.
	Partnership Roles	PRISMA's roles in this intervention are: • Developing the business idea and business model • Contributing in Promotion materials and event • Supporting in Training • Linking with Inputs companies
	Intervention 2	**Vegetable Sahabat Tani**
	Partners	UD SAHABAT TANI
	Description	1. Sahabat Tani situated in Ende Flores island NTT and its business coverage reached Sikka, Lembata, Ende and Ngada districts 2. Sahabat Tani basically is the Distributor / retailer of agri-chemical

	Partners' Rationale	1. Sahabat Tani is the authorized dealer of EWINDO for seed and DGW for pesticides 2. Potential to boost the outreach for the farmers in Flores Island in the Semester 2 of 2017
	Partnership Roles	PRISMA's roles in this intervention are: • Developing the business idea and business model • Contributing in Promotion materials and event • Supporting in Training • Linking with Inputs companies
Beef EJ	**Intervention 1**	**Promoting supplementary feed (crop residues) for cattle fattening**
	Partner 1	UD Pangestune Utama or Wahyu Utama
	Description	UD Pangestune Utama or Wahyu Utama, is a Feedlotter, established in 2003 in Tuban, running business on cattle breeding, fattening, live cattle trading, and beef marketing. The company also produces and sells feed for cattle fattening (concentrate, crop residues, and molasses). However, the company only serves a limited number of farmers who are doing cattle fattening under a contract farming relationship model.
	Partners' Rationale	In order to expand the model and serving to a larger farmers outside current contract farming model, the Wahyu Utama is willing to provide benefits to the farmers through promoting the supplementary feed (crop residues) through development of demo plots and involving the retailers into the system to develop distribution channels.
	Partnership Roles	Prisma will support the company in: • Mapping out local sourced feedstuffs/fodders to make a cheaper cattle feed composition • Development of cattle feed composition formula using local sourced feedstuffs/fodders • Demo plots development model at selected Lead Farmers to promote crop residues usage for cattle fattening • Bring retailers into the system so that farmers have better access: • Looking for a wide and larger cattle feed market - serving and benefiting larger cattle farmers' population beyond its current market. • Development of a hard evidence based market promotion - using the success story business of demplots that shows commercial benefit of using appropriate feed to farmers in order to change their mindset and behaviors towards such investments.
	Intervention 2	**Promoting concentrated feed for cattle fattening**
	Partner 1	Community Business Centre (Pusat Kegiatan Masyarakat)

	Description	Holcim is one of the largest international cement producers in the world and has a plant in Tuban district. As part of its commitment to CSR, Holcim along with local leaders founded a local People's Activity Centre (*Pusat Kegiatan Masyarakat* - PKM). Holcim invests in community economic development through the PKM. One of its programs supports a cooperative of producers of concentrate feed for cattle farming.
	Partners' Rationale	In order to develop the CSR program in the community, especially with cattle farmers, PKM is willing to provide benefits to the farmers through the development of concentrate feed. In addition to supporting production, the program supports the selling of the concentrate feed, which should enable it to be sustainable in future.
	Partnership Roles	PRISMA brings a commercial orientation and a focus on sustainability to the established CSR program. The program has a built-in component and can benefit a larger population beyond the current operational area. PRISMA supports the development of a business model to promote and distribute the concentrate feed product to more farmer groups by establishing distribution channels (agents/ lead farmers/ retailers).
	Intervention 3	**Promoting Concentrate Feed in Eastern East Java**
	Partner 1	KJUB Puspetasari or Nutrifeed
	Description	Established in 1995, KJUB Puspetasari or more known as Nutrifeed, is a large secondary cooperative with main business in livestock feed industry. The organisation produce feed for dairy and beef cattle and is the 3rd largest feed companies in East Java. Currently 90% of Nutrifeed's concentrate feed sales are for dairy cattle while 10% are for beef cattle
	Partner's Rationale	As a growing company, Nutrifeed have great desire to expand their feed business, especially on beef cattle feed business. Although they have invested further to expand feed business (e.g. purchasing new machine, procuring raw materials), they are still struggling in market penetration, especially on farmers' level as most of their sales at the moment is intended for dairy cattle and government order.
	Partnership Roles	PRISMA will support the company in promoting concentrate feed to increase cattle productivity through establishment of demoplots and attractive promotional strategy, as well as support the company in developing distribution channel, especially in Eastern part of East Java. Nutrifeed will invest in product samples, technical sales, VET assistant and delivery services.
Beef NTT	**Intervention**	**Promoting Lamtoro as a premium forage for cattle fattening**
	Partner	PUSKUD
	Description	A study of the feed sector done by PRISMA and PUSKUD in July – October 2015 concluded that *Leucaena leucocephala* (Lamtoro) is a 'key' forage that is available all year round that can help farmers achieve an optimum Average Daily Gain (ADG) of cattle. Lamtoro has been proven to increase growth rate of Bali cattle under prevailing feeding management from 100-200 gram/day to 400-600 gram/day. However, this study also found that farmers do not widely use Lamtoro for cattle

		feed and they plant Lamtoro haphazardly in their farm so it is not easy to calculate forage production and the feeding capacity of each plot for their cattle. In addition, it was observed that farmers did not have sufficient Lamtoro to supply to their cattle in the dry season. Consequently, it is predicted that farmers only offered one-half to two-third of the recommended Lamtoro requirement per day. Therefore, the optimum ADG is not achieved. Even worse, the farmers suffer from loss of their cattle weight in the dry season. Farmers also have poor knowledge and skills on good rearing practices, good feeding practices, and animal health control practices. These further exacerbate the low ADG of cattle. To address these problems, we plan to expand farmers' Lamtoro production and increase their knowledge and skills on Lamtoro cultivation (including seeds/seedlings selection, planting arrangement, cutting techniques, maintenance). Many farmers have idle land to expand Lamtoro plantation. Through the activities in this intervention, PRISMA will support PUSKUD to increase the awareness, knowledge, and skills of farmers through training on Good Agriculture Practices of Lamtoro cultivation, Good Cattle Feeding Management and Practices, Good Rearing Practices as well as Good Cattle Health Control Practices.
	Partners' Rationale	• PUSKUD is one of the key and big player of cattle fattening in NTT • There are 45 Livestock Cooperatives under PUSKUD (consists of 139 farmer groups), with member around 9000 farmers • Experienced > 30 years in cattle fattening and sustain in their business ventures • Responsive and progressive to adopt innovations • Willing to share cost for intervention and invest to expand their business • Willing to invest to improve capacity of its staff Have resources: 1 veterinary, 20 field staff.
	Partnership Roles	PRISMA provides an expert to support PUSKUD in the capacity building (PUSKUD level, Nursery level, farmer level), demo plot design, study demand of Lamtoro, promotional & education tools, and facilitation for conduct event (training, launching, visit study)
Anggur Merah	**Intervention 1**	**Synergy of Anggur Merah Program & PRISMA for Beef Sector NTT - Effective Use of Lamtoro as a Premium Forage for Cattle Fattening**
	Partner	Public partner: Provincial Government of NTT through the Secretariat of Program Anggur Merah (AM). A letter of acknowledgement has been prepared by the Prov. Govt for this partnership. Private partner: PUSKUD (the partner of Sub-Sector Beef NTT, where this AM Intervention will join the partnership
	Description	This intervention will take advantage of existing AM Program being implemented by the NTT Govt. The AM program provides stimulant grants to a village that majority uses the grants for financing community's cattle fattening. Common problems faced by cattle farmers are low productivity due to feed scarcity and low skills on managing cattle fattening, which impact on low income earned by cattle farmers.

	Partners' Rationale	Prov. Govt. of NTT: to provide stimulant grants (AM funds) to each receiver village (including the location of this intervention); to hire village facilitators (PKM) who supervise the AM activities in each target villages (including the village targeted by this intervention); to establish and monitor the cooperatives at villages level (including those in the targeted villages of this intervention). PUSKUD: to do feed test; to produce and sell processed feeds through AM cooperatives; to sell input (chemical) through AM cooperatives for producing cattle feeds using local forages; to support in increasing the capacity of AM cooperatives in order to act as the ISP and a business entity.
	PRISMA's Roles	PRISMA: to support PUSKUD to provide technical assistance and capacity building to AM cooperatives; to link AM cooperatives to other market actors for cattle fattening business
	Intervention 2	**Synergy of Anggur Merah Program & PRISMA for Pig Sector NTT – Support the Development and Promotion of Quality Feed Supply in NTT**
	Partner	SIERAD Produce (the partner of Sub-Sector Pig NTT, where this AM intervention will join the partnership between HIVOS as co-facilitator PRISMA
	Description	This intervention will take advantage of existing AM Program being implemented by the NTT Govt. The AM program provides stimulant grants to a village that majority uses the grants for financing community's cattle fattening and pig fattening. Common problems faced by pig farmers are access information of better quality feed and lack of good feeding practice which have influenced low productivity and longer pig fattening period which have impacted on low income earned by pig farmers.
	Partner's rationale	Prov. Govt. of NTT: to provide stimulant grants (AM funds) to each receiver village (including the location of this intervention); to hire village facilitators (PKM) who supervise the AM activities in each target villages (including the village targeted by this intervention); to establish and monitor the cooperatives at villages level (including those in the targeted villages of this intervention). SIERAD: to sell pig feed through Input shops and provides technical services through agronomist related with good feeding practice; to distribute promotion tools to farmers to increase access of information related with feed product knowledge and good feeding practice; to support in increasing capacity of AM cooperatives in order to act as the ISP and a business entity
	PRISMA roles	PRISMA: to support SIERAD (including ISP – input shops) to provide technical assistance and capacity building to AM cooperatives; to link AM cooperatives to other market actors for pig fattening business; Expand target market area for SIERAD product
	Intervention 3	**Synergy of Anggur Merah Program & PRISMA for Maize Sector NTT – Promoting the use of composite (OPV) Seed**
	Partner	CV TIGA PUTRI MANDIRI (TPM) – maize composite nurseries in Atambua, NTT (the partner of Sub-Sector Maize NTT, where this AM intervention will join the partnership between Maize NTT PRISMA team.
	Description	This intervention will take advantage of existing AM program being implemented by the NTT Government. The AM program provides stimulant grants to villages that use the grants mostly for financing maize of smallholder farmers. Common problems faced by maize farmers are access to better quality maize seeds. Those problems lead to low productivity and implicate on low income earned by maize farmers.

		AM cooperatives currently are not using their fund to finance productive sector such as maize business. the cooperatives and their member only earn small benefit from the cooperative annual surplus by targeting maize business, cooperatives can grow its portfolio & turnover. Besides, farmers will have access to finance through AM cooperatives so they can get in-kind loan especially for maize purple composite seeds. This access allows farmers to run maize business & gain profits too due to as contract farmers, and private partner can continue provide maize purple seeds to AM cooperatives and sell more maize blue seeds to other farmers
	Partner's rationale	Prov. Govt. of NTT: to provide stimulant grants (AM funds) to each receiver village (including the location of this intervention); to hire village facilitators (PKM) who supervise the AM activities in each target villages (including the village targeted by this intervention); to establish and monitor the cooperatives at villages level (including those in the targeted villages of this intervention). CV TPM: to maize composite seeds (blue label) through AM Cooperative and provides technical services through agronomist related with good agriculture practice; to distribute promotion tools to farmers to increase access of information related with maize composite good agriculture practice; to support in increasing capacity of AM cooperatives in order to act as the ISP and a business entity
	PRISMA roles	PRISMA: to link AM cooperatives to CV TPM for maize contract farming system;to support CV TPM to provide technical assistance and capacity building to AM cooperatives as a partner for contract farming; Expand target market area for maize composite seeds from CV TPM.
Vegetable West Papua	**Intervention 1**	**Increase Productivity through Promoting the Provision of GAP Knowledge and the Use of Good Quality Seed**
	Partners	EWINDO & Yayasan Bina Tani Sejahtera (YBTS)
	Description	EWINDO is the first integrated vegetable seeds company in Indonesia which produces vegetable seeds through plant breeding. EWINDO aims to provide high quality seeds to increase farmer's income and promote vegetable consumption. EWINDO has been producing more productive seeds and expanding their business in West Papua. Bina Tani Sejahtera Foundation established 2009 (based on establishment statute) is length-arm of PT Ewindo who produces and supplies vegetable seeds. Bina Tani aims to advance farmer's prosperity by providing extension, advisory and training services to farmers. Bina Tani also acts a development agency towards markets in introducing and training of better vegetable cultivation and good agriculture practices to farmers before Ewindo enters to the market commercially.
	Partners' Rationale	PRISMA partnered with EWINDO to increase the productivity of vegetables by providing assistance and information on good agricultural practices and promoting the use of good quality seeds. EWINDO has Product Promoters who are located in various location to give assistances and promote GAP & quality seed to vegetable farmers. EWINDO has plan to expand their area of operation in West Papua.

		Bina Tani Sejahtera Foundation has capacity to undertake the tasks since Bina Tani has been doing similar activities/interventions with several international organizations.
	Partnership Roles	The role of partnership is to accelerate the provision on GAP and good quality seed and its application at farmer level. EWINDO will provide extension service through their Product Promoters (PP). PP delivers extension services to farmers through socialization, exchange visit, and demoplot activities to demonstrate correct horticultural practices. Meanwhile, YBTS will provides support in the form of training modules development and delivery training on those modules basis to EW, seed retailers and farmers. YBTS will equips EW with sufficient knowledge and management of extension service.
Vegetables Papua	**Intervention 1**	**Increase Productivity through Promote Good Quality Seed and GAP Provision**
	Partner 1	EWINDO
	Description	EWINDO is the first integrated vegetable seeds company in Indonesia which produces vegetable seeds through plant breeding. EWINDO aims to provide high quality seeds to increase farmer's income and promote vegetable consumption. EWINDO has been producing more productive seeds and expanding their business in Papua.
	Partners' Rationale	PRISMA partnered with EWINDO to increase the productivity of vegetables by providing assistance and information on good agricultural practices and promoting the use of good quality seeds. EWINDO has Product Promotor who is located in various location to give assistances and promote GAP & quality seed to vegetable farmers. EWINDO has plan to expand their area of operation in Papua.
	Partnership Roles	EWINDO provide extension service through their Product Promotors (PP). PP delivers extension services to farmers through socialization, exchange visit, demoplot activities, and other promotional event to demonstrate correct horticultural practices.
Extension Services	**Intervention 1**	**Pest and Disease Identification through Smartphone Application (NTB) 2ESA**
	Partner 1	PT. 8Villages Indonesia
	Description	8Villages was founded in 2011 with the intent to change the way information flows from private and public sectors to rural populations. Today, 8Villages combines experienced marketers, agronomists as well as software and telecommunications engineers.
	Partners' Rationale	A starting point for further collaboration with Government's Agricultural Extension Department. In the future 8Villages want to collaboration with ministry of agriculture, they will show that they have good Application for farmers. Moreover 8Villages

		would like to Market intelligence and Brand exposure from this intervention. Gaining new extension service workers (and potentially lead farmers) customers in NTB.
	Partnership Roles	8Villages create smartphone application for identification pest and disease, conduct training of trainer for extension worker, follow up extension worker and monitoring app usage from server.
	Partner 2	Government's Agricultural Extension Department (BP4K)
	Description	BP4K is a Government's Agricultural Extension Department that conduct Extension of Agriculture, Fisheries and Forestry Effective. BP4K coordination with extension worker in level Sub district. We collaborate with BP4K in 3 district level (Lombok Timur, Sumbawa, and Bima).
	Partners' Rationale	This intervention match with Government's Agricultural Extension Department strategic plan. With this intervention BP4K have the new methodology for extension services and will increase in the level of technological innovation to extension workers.
	Partnership Roles	BP4K will identify and appoint personals to attend the training of trainer 'Dokter Tanaman' application, BP4K conduct training for broader extension workers (level sub district) in pest and disease identification through the 'dokter tanaman' application. Coordination and monitoring activities at the sub district level interventions.
	Intervention 2	**Crop Protection Call Center (EJ) 1ESA**
	Partner	PT. BASF Indonesia
	Description	PT. BASF INDONESIA is a chemical company with broad portfolio including crop protection. The portfolio also includes products for turf and ornamental plants, pest control and public health. PT. BASF INDONESIA Crop Protection division is a leading innovator in partnership with farmers to protect and improve crop yields, enabling them to produce high quality food more efficiency.
	Partners' Rationale	BASF has an existing call-center to engage their lead farmers and also provide product consultation to their customers. They can expand their market share through educating farmers on proper crop-protection. PRISMA and BASF will collaborate to promote the Call center for farmers and be expected farmers will call the call center to crop consultation and BASF will Provide Crops' Pest & Disease Consultation so they can promote their products by phone and ensure that their products are available in the intervention areas.
	Partnership Roles	BASF will be contact center / call center capacity building, promotion of the pest and disease consultation call center, Ensure the availability of the Partner products that are recommended by the call center in the retail shop near the farmer. To direct agronomist or BC (Business Consultant) to follow up escalation cases by visiting the farmer's field. To ensure the pest and disease consultation call center provides a relevant and good quality information so that it can be a trustworthy information source for farmers.

Co-facilitators 1 – partner details

		Partners' Details
Coffee	**Intervention 1**	**Development of ICCRI franchise**
	Partner	ICCRI
	Description	ICCRI was founded on the 1st January 1911 and holds a national mandate to conduct research and development activities into coffee and cocoa as well as provide data and information to smallholders, private and estate companies, national and regional government agencies, associations and other stakeholders. The institution supports locations for on-farm Robusta coffee experiments. Since 2011, two of ICCRI's units have been awarded accreditation - its certification body and testing laboratory. ICCRI has a library with a vast collection of reference materials. The institute has 36 researchers comprising 12 PhD holders, seven Masters graduates and 17 Bachelors holders.
	Partners' Rationale	ICCRI wishes to disseminate knowledge and skills but does not have the capacity to develop branches in many areas of Indonesia. ICCRI branches enable farmers and related stakeholders to better access ICCRI products and services.
	Partnership Possibilities	ICCRI support can help increase the productivity and quality of coffee. PRISMA will help ICCRI expand their services through the franchise model in project locations.
	Partner 2	Cooperatives
	Description	Cooperatives is one of main player in coffee sector. Farmers who are in the cooperatives can get a better price as their product will be sold as certificate product, information, and access to finance.
	Partners' Rationale	Each cooperatives has at least 100 to more than 1000 coffee's farmers member. All of the member of the cooperatives will send their product through cooperatives, getting finance access recommendation, and information sources.
	Partnership Possibilities	Cooperatives seek to increase their quality of coffee with certificate, coffee supply from its coffee farmer's member, and their member number but doesn't have proper knowledge and management capacity yet. PRISMA will linkage them with Bank to increase their financial capacity and ICCRI to increase their knowledge capacity.
	Intervention 2	**Development of decentralized processing facilities for specialty coffee through cooperatives**
	Partner 1	PT Indokom Citra Persada (Indokom)
	Description	Indokom is a coffee exporting company founded in 1996. The company has offices in Lampung province and Sidoarjo, East Java province. In 2012, the company exported 70,000 MT to markets in the European Union, Japan, the Middle East and the

		USA. Most sales are done under long-term contract with an average price of around USD 4,000 per MT. While for the spot market is only 10% of total volume.
	Partners' Rationale	In order to increase turnover, the company aims to increase sales of specialty coffee and for that it needs a continuous supply of quality coffee from farmers and reliable management systems.
	Partnership Possibilities	Indokom are concerned to improve the welfare of coffee farmers in Indonesia through providing technical assistance at post-harvest and in processing. PRISMA will help Indokom develop a cooperation model based on harvest cooperatives for processing coffee in pilot project areas.
	Partner 2	Bank NTT
	Description	Bank NTT is a development regional bank based in NTT (Eastern Nusa Tenggara). It has been established since 17 July 1962 and become limited liability company on 22 April 1999 with current IDR 9.5 Trillion. Inspired by service spirit to the society, Bank NTT does not only serve in urban area but also spread across remote area in East Nusa Tenggara Province. Within this spirit, Bank NTT has existed in 22 Municipals/Cities in East Nusa Tenggara and Surabaya – East Java area.
	Partners' Rationale	Bank NTT has an organization target to improve regional business through access to finance in all over NTT areas.
	Partnership Possibilities	Bank NTT seeks to new credit areas in NTT but doesn't yet have proper understanding on the beneficiary capacity. PRISMA will linkage them with potential cooperatives who need to improve their financial capacity. The multi-stakeholder agreement will be used as one of the guarantee for the Bank to give finance.
Cashew	**Intervention 1**	**Cashew GNE**
	Partner	PT Gerbang NTB Emas (PT GNE)
	Description	PT GNE is a state-owned enterprise (SOE) of the West Nusa Tenggara (NTB) provincial government. The company was established on 5 April 2007 and has several business units, including construction and agriculture equipment production. The company's goal is to generate profit for the local government. As an SOE, PT GNE also has a mandate to support the economic potential of the local area and increase social welfare through productive activities.
	Partners' Rationale	PT GNE wishes to increase their business income and is planning to re-establish the currently idle agro-business unit. The unit will provide technical assistance and mentoring to service providers at PT GNE's own cost. PT. GNE will also develop partnerships with input producers and suppliers and will become their main distributor in NTB.
	Partnership Roles	PT GNE has a mandate to support the development of local economic potential in NTB. The cashew sector in Bima and Dompu is the target area for their products and services. PRISMA will help PT GNE develop the agro-business unit, mainly in business planning and marketing.
Seaweed	**Intervention**	**Seaweed UD Alga**

	Partner 1	CV EVADIAN (IMTA MUZE Indonesia)
	Description	CV EVADIAN was established by Iain C. Neish (PhD), an international seaweed expert involved in supplying dried seaweed to export and domestic markets. The company is based in South Sulawesi.
	Partners' Rationale	CV EVADIAN is interested in establishing a Seaweed Support Centre (SSC) to work in two districts of the eastern Flores Islands, with investment in warehousing, drying and packaging facilities.
	Partnership Roles	Through the SSC, CV EVADIAN will provide technical assistance in the form of good agriculture practice (GAP) development, post-harvest handling, marketing, logistics and market information. PRISMA will support networking in local communities, facilitation of capacity building for SSC staff and facilitate technical know-how and capacity building by SSC staff to seaweed farmers.
	Partner 2	UD. ALGA
	Description	UD. Alga was established by Kevin Suhaili as a seaweed trading company. UD. Alga based at Jl. Raya Ba'a Basalangga, West Rote-Rote Ndao, East Nusa Tenggara. It has seaweed cultivation area in Dodaek of Southern Rote. Since February 2015 UD. Alga has initiated to develop seaweed cultivation of variety "SAKOL" together with local community.
	Partners' Rationale	UD. ALGA is interested in establishing a Seaweed Support Centre (SSC) to work in two districts of the Kupang and Rote with investment in warehousing, drying and provide the training of Good Agriculture Practice (GAP) on Seaweed.
	Partnership Roles	Through the SSC, UD. ALGA will provide technical assistance in the form of good agriculture practice (GAP) development, post-harvest handling, marketing, logistics and market information. PRISMA will support networking in local communities, facilitation of capacity building for SSC staff and facilitate technical know-how and capacity building by SSC staff to seaweed farmers.
Fishery	**Intervention 1**	**Developing fish cage farming (already closed)**
	Partner	PT Trimitra Anugerah Segara (TAS) (formerly CV Berill Jaya Marine)
	Description	TAS is a *kerapu* (grouper) fish exporter based in Bali.
	Partners' Rationale	The business is rapidly expanding and faces constant demand.
	Partnership Possibilities	TAS will support kerapu production units to improve their productivity and product quality in return for access to an improved and consistent supply of fish. This will be achieved through developing apprenticeships and ToT programs, with the support of the project. TAS will support the apprenticeships and technical assistance providers. TAS will facilitate farmer group directly to export the fish to abroad markets and apply commission for this new role.

	Intervention 2	**Developing innovative financial products for fish cage farming (already closed)**
	Partner	Bank Pembangunan Daerah Jawa Timur (Bank Jatim)
	Description	Bank Jatim, established in 1961, is a local government-owned development bank with 40 branches throughout East Java and Jakarta.
	Partners' Rationale	Bank Jatim has a loan scheme focusing on the fisheries and agriculture sectors but the financial products are not specific to fish cage farming.
	Partnership Possibilities	Bank Jatim will develop financial products and promote them to kerapu production units through the Kerapu Producers' Association. Bank Jatim will provide finance and develop a training program to improve the financial literacy and management skills of the kerapu production units and the Kerapu Producers' Association.
Cassava	**Intervention 1**	**Promoting rewarding system and GAP to increase the quantity and regularity of fresh cassava supply for starch processing (CLOSED)**
	Partner 1	Pak Amir (Large Cassava Supplier)
	Description	Pak Amir started his business in cassava since 1998. He began as supplier of chips for local home industry in Sumenep-Madura. Currently, Mr. Amir supplies cassava to big tapioca factories in East Java * Malang, Kediri and Ponorogo. Pak Amir purchase cassava from farmers through local collectors. Pak Amir has 75 local collectors spread across Java and Madura. During the peak season Pak Amir can supply cassava to big factories between 14-25 tons per day
	Partners' Rationale	The company wishes to expand their sourcing base and consistent supply of cassava from farmers in order to meet expanding production needs.
	Partnership Possibilities	Pak Amir has some experience in purchasing cassava from Madura. PRISMA will help Pak Amir develop a cassava collection model as well as provide support in the form of technical mentoring services for good agricultural and post-harvest handling practices, which will be given to farmers through the collectors. This will ensure farmers have better market access and at the same time Pak Amir will be able to get consistent supply of quality cassava.
	Intervention 2	**Increasing access to good agricultural practices (GAP) and fertilizer**
	Partner 1	PT Natural Nusantara (NASA)
	Description	PT NASA is a liquid organic fertilizer company located in Yogyakarta that has much experience in researching their product. Product development activities began in 1985 and the company was formed in 2002. Many farmers in Java and Sumatra have used products from PT NASA for more than 15 years. PT NASA has a production capacity of 1 million litres per year.

	Partners' Rationale	PT NASA is eager to expand their market for liquid organic fertilizer products through cooperation with local agents and distributors in cassava-producing areas of East Java. For each additional one hectare of land, PT NASA expects additional sales of around IDR 1.2 million (for the use of three products, namely POC NASA, Supernasa and Homonik).
	Partnership Possibilities	PT NASA has the ability and experience to produce liquid organic fertilizer and to deliver technical assistance on product application in the field through their team of experts. PRISMA will help PT NASA develop the market for its products and connect the company with fertilizer distributors.
	Intervention 3	**Developing a consistent supply of cassava chips for Animal Feed (CLOSED)**
	Partner	Unit Pengembangan Sosial Ekonomi (PSE) Keuskupan Atambua
	Description	PSE Keuskupan Atambua consists of 60 Pariko with around 12.000 farmers as members; substantial number of these farmers are also involved in pig rearing. PSE has several production unit including briks, tile, and paving production, furniture production, truck rent, ect,
	Partners' Rationale	PSE is interested to develop animal feed miller business because of the opportunity arising out of limited animal feed availability in the market and growing animal population in NTT especially pig. There are local raw materials available including cassava, which is a major ingredient. The local animal feed thus produced can be comptetitive in the market due to high transportation cost of bringing feed from outside the island.
	Partnership Possibilities	The company is quite new in this business and needs support to establish feed miller company, feed testing, marketing, and collaborating with collectors. PRISMA will help PSE develop cooperative agreements with collectors in the project area as well as deliver capacity building to PSE about developing the feed production, testing, marketing,. PSE will provide capacity building of GAP and post harvesting knowhow to farmer through the collector.
Pigs	**Intervention 1**	**Introducing improved pig breed and promotion of commercial pig rearing (CLOSED)**
	Partner 1	Yayasan Bintang Firdaus (YBF)
	Description	YBF is a Pig Breeding Company and Key Service Provider. The company has invested in developing pig business in Ende since 2008.
	Partners' Rationale	YBF has interest to expand their piglets business in in Flores and other islands by upgrading their sows and piglet rearing management.
	Partnership Possibilities	YBF will supply piglets and knowledge on good rearing practice to farmers that are interested to improve their pig rearing. PRISMA will provide capacity building support to YBF and link YBF to other market actors to promote their piglets, and to source fodder, other necessary inputs for piglets breeding company.
	Partner 2	Kebun Misi Bhoanawa (KMB)

	Description	KMB is a Pig Breeding Company and Key Service Provider. The company has invested in developing pig business in Ende since 2010.
	Partners' Rationale	KBM has interest to expand their piglets business in in Flores and other islands by upgrading their sows and piglet management.
	Partnership Possibilities	KMB will supply piglets and knowledge on good rearing practice to farmers that are interested to improve their pig rearing. PRISMA will provide capacity building support to KMB and link KMB to other market actors to promote their piglets, and to source fodder, other necessary inputs for piglets breeding company.
	Partner 3	Biara Bruder (BB)
	Description	BB is a Pig Breeding Company and Key Service Provider. The company has invested in developing pig business in Ende since 2000.
	Partners' Rationale	BB has interest to expand their piglets business in in Flores and other islands by upgrading their sows and piglet management.
	Partnership Possibilities	BB will supply piglets and knowledge on good rearing practice to farmers that are interested to improve their pig rearing. PRISMA will provide capacity building support to BB and link BB to other market actors to promote their piglets, and to source fodder, other necessary inputs for piglets breeding company.
	Partner 4	St Aloysiu (SA)
	Description	SA is a Pig Breeding Company and Key Service Provider. The company has invested in developing pig business in Ruteng since 2012.
	Partners' Rationale	SA has interest to expand their piglets business in in Flores and other islands by upgrading their sows and piglet management.
	Partnership Possibilities	SA will supply piglets and knowledge on good rearing practice to farmers that are interested to improve their pig rearing. PRISMA will provide capacity building support to SA and link SA to other market actors to promote their piglets, and to source fodder, other necessary inputs for piglets breeding company.
	Partner 5	Convasionis
	Description	Convasionis is a Pig Breeding Company and Key Service Provider. The company has invested in developing pig business in Ruteng since 2013.
	Partners' Rationale	Convasionis has interest to expand their piglet business in in Flores and other islands by upgrading their sows and piglet management.

	Partnership Possibilities	CONVASIONIS will supply piglets and knowledge on good rearing practice to farmers that are interested to improve their pig rearing. PRISMA will provide capacity building support to CONVASIONIS and link CONVASIONIS to other market actors to promote their piglets, and to source fodder, other necessary inputs for piglets breeding company.
	Partner 6	Ordo SVD
	Description	Ordo SVD is a Pig Breeding Company and Key Service Provider. The company has invested in developing pig business in Labuan Bajo since 2005.
	Partners' Rationale	Ordo SVD has interest to expand their piglet business in in Flores and other islands by upgrading their sows and piglet management.
	Partnership Possibilities	ORDO SVD will supply piglets and knowledge on good rearing practice to farmers that are interested to improve their pig rearing. PRISMA will provide capacity building support to ORDO SVD and link ORDO SVD to other market actors to promote their piglets, and to source fodder, other necessary inputs for piglets breeding company.
	Partner 7	Clements
	Description	Clements is a Pig Breeding Company and Key Service Provider. The company has invested in developing pig business in Bajawa since 2013.
	Partners' Rationale	Clements has interest to expand their piglet business in in Flores and other islands by upgrading their sows and piglet management.
	Partnership Possibilities	CLEMENTS will supply piglets and knowledge on good rearing practice to farmers that are interested to improve their pig rearing. PRISMA will provide capacity building support to CLEMENTS and link CLEMENTS to other market actors to promote their piglets, and to source fodder, other necessary inputs for piglets breeding company.
	Partner 8	Pati Ahu
	Description	Pati Ahu is a Pig Breeding Company and Key Service Provider. The company has invested in developing pig business in Maumere since 1995.
	Partners' Rationale	Pati Ahu has interest to expand their piglet business in in Flores and other islands by upgrading their sows and piglet management.
	Partnership Possibilities	PATI Ahu will supply piglets and knowledge on good rearing practice to farmers that are interested to improve their pig rearing. PRISMA will provide capacity building support to PATI Ahu and link PATI Ahu to other market actors to promote their piglets, and to source fodder, other necessary inputs for piglets breeding company.
	Partner 9	PT Charoen Pokphand (CP)

	Description	PT Charoen Pokphand Indonesia is Indonesia's largest producer of poultry feed, Day Old Chicks and processed chickens. The Company was established in 1972 as the first high-volume feed mill in Jakarta manufacturing premium quality poultry feed.
	Partners' Rationale	PT CP already worked in Flores and marketed around 50MT pigs feed per month recently. The company aims to increase the pigs feed market in Flores but farmers have limited access to good piglets and are not knowledgeable about the benefit and use of quality feed. Given the size of the pig market in Flores, this is a very high potential area for CP feed and therefore the company is willing to invest in educating the farmers.
	Partnership Possibilities	PT CP with support from PRISMA will train and use distribution and other channel members such as traders, input sellers, credit union etc. to educate farmer by providing embedded service on GRP and promote use of quality fodder.
	Intervention 2	**Support the Development and Promotion of Quality Feed Supply and its Distribution Channel in Flores and Sumba, East Nusa Tenggara (NTT)**
	Partner 1	PT Sierad Produce Tbk
	Description	Sierad Produce is an integrated poultry-based food company in Indonesia. Its core businesses include the production of primary processed and poultry feed; breeding and hatchery; commercial chicken farms; slaughtering and production of further processed and value added chicken products; and pig feed. Sierad is one of the largest player in the Indonesian feed industries. Sierad Produce manufactures and markets its processed chicken products under the Belfoods brand. Belfoods products are available at its retail outlets and in supermarkets and hypermarkets across Indonesia. Sierad Produce was established in 1985. The company has been listed on the Jakarta Stock Exchange since 1997 and became part of by Gunung Sewu in 2015 through acquisition by Great Giant Pineapple.
	Partners' Rationale	Sierad is a new pig feed player in Flores NTT. The company entered into Flores market was influenced by PRISMA. They started selling their pig feed products in Flores since November 2015. In Dec 2016, their feed sale reaching up to 100 MT and will be growing further. The company aims to increase the pigs feed market in NTT, particularly in Flores but farmers have limited access to good quality feed and are not knowledgeable about the benefit and use of quality feed for pigs. Given the size of the pig market in NTT this is a very high potential area for the company's feed products to penetrate in and therefore the company is willing to invest in educating the farmers and developing distribution channel to remote areas so that farmers in the remote areas will have a better access.
	Partnership Possibilities	PT Sierad Produce with the support from PRISMA will train and use feed distribution and other channel members such as input sellers, credit union, retailers, etc. to educate farmer by providing embedded service on GRP and promote use of good quality feed as well as animal welfare.
	Partner 2	PT Japfa Comfeed Indonesia Tbk
	Description	PT Japfa Comfeed Indonesia Tbk is one of the largest and most integrated agri-food companies in Indonesia. Its core business activities include animal feed manufacturing, chicken breeding, poultry processing as well as aquaculture farming.

	Partners' Rationale	Japfa Comfeed a new pig feed player in Flores NTT. The company entered Flores market was influenced by PRISMA and just started selling their pig feed products in Flores since January 2016. In Dec 2016, their feed sale reaching up to 50 MT and will be growing further. The company aims to increase the pigs feed market in NTT, particularly in Flores but farmers have limited access to good quality feed and are not knowledgeable about the benefit and use of quality feed for pigs. Given the size of the pig market in NTT this is a very high potential area for the company's feed products to penetrate in and therefore the company is willing to invest in educating the farmers and developing distribution channel to remote areas so that farmers in the remote areas will have a better access.
	Partnership Possibilities	PT Japfa Comfeed with the support from PRISMA will train and use feed distribution and other channel members such as input sellers, credit union, retailers, etc. to educate farmer by providing embedded service on GRP and promote use of good quality feed as well as animal welfare.
	Partner 3	Rembu Tedeng
	Description	Rembu Tedeng, is a small sized local feedmiller in Ruteng, Manggarai District, Flores. The company was established in 2015 and started producing pig feed products in May 2016. The monthly feed production is more less 30 MT.
	Partners' Rationale	Rembu Tedeng is a small sized and "the first local player of pig feed in Flores and even NTT. Given the growing demand for compound feed for pig in Flores, the company aims to take the benefit from the day-to-day increased demand of the pigs feed market in Flores but farmers have limited access to good quality feed and are not knowledgeable about the benefit and use of quality feed for pigs. The company is willing to invest in educating the farmers and developing distribution channel to remote areas so that farmers in the remote areas will have a better access.
	Partnership Possibilities	Rembu Tedeng with the support from PRISMA will train and use feed distribution and other channel members such as input sellers, credit union, retailers, etc. to educate farmer by providing embedded service on GRP and promote use of good quality feed as well as animal welfare.
	Partner 4	PT Malindo Feedmill Tbk
	Description	PT Malindo Feedmill Tbk, is one of the largest feed players in Indonesia, ranked 3rd (after Charoen Pokphand and Japfa Comfeed). The company was established in 1997 and has grown to have a wide range of products in animal feed, breeding farm, broiler farm and food processing. The continuous development is also demonstrated by the establishment of a breeding farm and feedmill in several regions in Indonesia such as Sumatra, Java, Kalimantan and Sulawesi.
	Partners' Rationale	PT Malindo Feedmill Tbk is a big feed producer in Indonesia and has been producing in Indonesia for 20 years. The company has entered market in Sumatra, Java, Kalimantan, Sulawesi and is looking for new places to expand their market. They were convinced by PRISMA on the potential NTT pig market and were interested to enter the market, specifically starting in Sumba. The company is willing to invest in educating and developing distribution channel reaching farmers in remote areas.
	Partnership Possibilities	PT Malindo Feedmill Tbk with the support from PRISMA will train and develop feed distribution also other channels such as input sellers, credit union, retailers, etc. to educate farmer on good rearing practices and provide embedded service to promote the use of good quality feed as well to encourage animal welfare.

	Intervention 2	**Promoting Improved Feed, Good Rearing Practices and Weighing Scale Practices in Timor Island, East Nusa Tenggara (NTT)**
	Partner 1	PT Malindo Feedmill Tbk
	Description	PT Malindo Feedmill Tbk, is one of the largest feed players in Indonesia, ranked 3rd (after Charoen Pokphand and Japfa Comfeed). The company was established in 1997 and has grown to have a wide range of products in animal feed, breeding farm, broiler farm and food processing. The continuous development is also demonstrated by the establishment of a breeding farm and feedmill in several regions in Indonesia such as Sumatra, Java, Kalimantan and Sulawesi.
	Partners' Rationale	PT Malindo Feedmill Tbk is a big feed producer in Indonesia and has been producing in Indonesia for 20 years. The company has entered market in Sumatra, Java, Kalimantan, Sulawesi and is looking for new places to expand their market. They were convinced by PRISMA on the potential NTT pig market and were interested to enter the market, specifically in Timor. The company is willing to invest in educating and developing distribution channel reaching farmers in remote areas.
	Partnership Possibilities	PT Malindo Feedmill Tbk with the support from PRISMA will train and develop feed distribution also other channels such as input sellers, credit union, retailers, etc. to educate farmer on good rearing practices and provide embedded service to promote the use of good quality feed as well to encourage animal welfare.
	Partner 2	PT. Sinar Terang Madani
	Description	PT. Sinar Terang Madani is established in 2012 as the first feedmill in Barru, South Sulawesi, producing premium animal feed. It has also opened another feedmill facility in Makassar, South Sulawesi.
	Partners' Rationale	PT Sinar Terang Madani has visions on becoming an integrated company for agribusiness in Indonesia, particularly in South Sulawesi and expand to Eastern Indonesia. After meeting with PRISMA and seeing the potential business for pig feed in NTT market, PT Sinar Terang Madani was convinced to enter NTT market, specifically Timor Island. The company is willing to increase the farmers' knowledge through training and/or demo plot also provide embed service to support farmers on good quality feed and establishing distribution channel to reach smallholder farmers in rural areas.
	Partnership Possibilities	PT Sinar Terang Madani with the support from PRISMA will conduct a series of educational activities, such as training of trainers, training for farmers, demo plot, also promotional activities, such as market storm, to promote information on good rearing practices and encourage animal welfare in rearing activities.
Coconut	**Intervention 1**	**Promotion of organic coconut sugar certification (COMPLETED)**
	Partner	PT Big Tree Farms (BTF)
	Description	BTF specialises in sourcing and marketing food products and has developed an innovative range of coconut sugar products.

	Partners' Rationale	BTF already works with 7,000 coconut sugar producers, mainly in Central Java. The company aims to establish new linkages with producers in East Java but lacks experience and have limited access in East Java market.
	Partnership Possibilities	BTF have been taking the lead in developing supply chain and covering the cost of organic certification for the first batch of farmers in Pacitan district. PRISMA have been supporting BTF for initial awareness-raising with farmers and developing the training materials. PRISMA will explore the potential market for innovative climbing tool that can increase the farmers' productivity, developing the business model in coordination with BTF. Note: the partnership with the co-facilitator has ended since End Jun'16. Currently PRISMA seek possibility to continue the partnership directly with BTF and with other potential partner in coconut sugar
	Intervention 2	Establishment of aggregation point/Increasing productivity through GAP and fertilizer **(CLOSED)**
	Partner	PT Kai Sun
	Description	PT Kai Sun is a locally registered company and its activities are backed by US-based company EcoEnviro Corp., which supports PT Kai Sun in marketing, technology and finance. EcoEnviro Corp is the sole distributor of all PT Kai Sun's products.
	Partners' Rationale	PT Kai Sun is looking to source sustainable exported quality coconut, which has a high demand in the exported market especially China, but has no experience in promoting good agriculture practice in their supply chain which can ensure such supply.
	Partnership Possibilities	PT Kai Sun, with support from PRISMA, will establishes and develops commercially-operated coconut aggregation points. Aggregation will be under the management of local actors (such as collectors, traders and lead farmers) and PT Kai Sun will establish supply agreement. PT Kai Sun will provide all supports for promoting good agriculture practice in coconut, including surveys, capacity building for farmers and collectors, for establishing and operating aggregation point. PT Kai Sun will buy all coconut produced by their supply chain at agreed premium price. Note: partnership with PT Kai Sun has ended as the intervention proves not bringing significant impact at farmers (refer to sub-sector briefs)
	Partner	PT Arya Supra Nugraha (ASN) **(CLOSED)**
	Description	PT ASN, a group company of Saraswanti cooperation, specializes in agro-input trading and marketing.
	Partners' Rationale	PT ASN aims to expand its B2C market for fertilizer products but have limited access and experience in Lombok area. In particular, the company intends to broaden its palma fertilizer market.
	Partnership Possibilities	The changing direction of coconut intervention in Lombok results in the productivity increase focus. PT ASN, with support from PRISMA, has been introducing PALMO fertilizer for coconut crops. The company has been establishing 100 coconut demo plots showcasing the fertilizer's effect that aims to increase at least 30% of the coconut productivity. PRISMA has assessed the market linkages among the coconut suppliers and buyers and results shows adequate market capacity that

		can absorb the rising coconut production from the use of fertilizer, as well as to prevent price falls with the increased of coconut supply. New partnership possibility is currently taking place between PT ASN and PRISMA through the co-facilitator

Co-facilitators 2 – partner details

		Partners' Details
Maize NTT	**Intervention 1**	**Good Drying & Storing Practice**
	Partner	PT Buana Ika Syahputra (PT BIS)
	Description	PT BIS produces plastic products such as plastic bottles and plastic containers mostly for packaging. They have enough capacity and equipment to create and produce new product based on customer needs.
	Partners' Rationale	PT BIS is interested to expand their market area and entering eastern Indonesia/NTT. They willing to create new product model and invest in the innovation that will be match with the farmer/customer needs.
	Partnership Roles	PRISMA supports PT BIS in identifying the distribution channels, conducting promotion activities, and supporting in product designing as well as marketing strategy to promote technology on good drying practice using jerrycan (they call "Silo Jinjing") to farmers in Timor island, NTT.
Peanut NTT	**Intervention 1**	**Production & Supply of Quality Seed**
	Partner	CV Tiga Putri Mandiri
	Description	CV Tiga Putri Mandiri has produced high quality peanut seed, namely Hypoma 2 and Streep. In addition, improved local seed is also produced as a high quality commercial product. Peanut sector is a new business for CV Tiga Putri Mandiri as an expansion after having quite mature experience in nursery business for maize and also rice since 2005. It starts expanding to peanut business since 2015 in a partnership with YMTM. For peanut, CV Tiga Putri Mandiri has three focus area, which are TTU, Belu, and Malaka districts.
	Partners' Rationale	The company wants to expand their business portfolio by trying out another nursery development for new commodity. It has seen the potential of this market because there are still limited commercial peanut producer available. For the expansion, CV Tiga Putri Mandiri is ready to invest in promotion include demonstration plots, good agricultural practices (GAP), and harvest simple technology capacity building for peanut nursery farmers in their area of business.
	Partnership Roles	PRISMA supports CV Tiga Putri Mandiri in production of Hypoma 2, Streep, and improved local seed seed and develop sales and distribution channels (sales agents/retailers) in TTU, Belu, and Malaka districts and promote and distribute their seeds among target groups.

	Partner	CV Sinar Tunbeis Makmur
	Description	CV Sinar Tunbeis Makmur has produced high quality peanut seeds, namely Hypoma 2 and Lurik. In addition, it produces high productivity local seeds as high quality commercial products. Peanut sector is a new business for CV Sinar Tunbeis Makmur since mid-2016. In marketing its products, CV. STM focuses on Kupang and TTS districts.
	Partners' Rationale	CV. STM is a new partner who tries to produce peanut seed after discussing with YMTM. Previously, Mr. Otniel (the owner of CV. STM) was a plasma farmer for CV. Intan in producing Composite Maize seeds. Mr. Otniel also has experience in planting peanuts, as well as being a collector in his area to sell peanut consumption to the market. He is interested in entering peanut nursery business because peanut seed producer is scarce in NTT. To embrace this business, CV. STM has invested in producing seeds primarily: promoting good quality seeds, making demo plot, organizing peanut farmers meeting, and conducting assistance related to good and proper peanut cultivation and handling practices to peanut farmers in Kupang and TTS district. In the time of agreement, CV. Sinar Tunbeis Makmur already has a permit as a peanut seed nursery.
	Partnership Roles	PRISMA supports CV Sinar Tunbeis Makmur (STM) in production of Hypoma 2, Lurik, and improved local seed and develop sales and distribution channels (sales agents/retailers) in Kupang and TTS districts, and promote their seeds among target groups.
	Partner	CV Anjas
	Description	CV. Anjas has produced high quality peanut seeds, namely Hypoma 2 and Lurik. They also produce high productivity local seeds as high-quality commercial products. The peanut sector is a new venture for CV. Anjas. Every year, CV. Anjas produces peanuts twice, i.e. on cycle-1 (rainy season) and cycle-2 (dry season) to meet local market demand. In mid-2016, they try to grow the business as a producer of peanut seeds for sale to Nagekeo and Ngada district.
	Partners' Rationale	CV. Anjas is a new partner in Boawae, Nagekeo district who is interested to develop a peanut seed business. Their commitment to enter the business was raised after a discussion with YMTM. Previously, Mr. Makarius was a peanut farmer in his area. He produces peanuts and sells to the local market. To meet the demands of the local market, Mr. Makarius and his wife bought peanuts from other farmers around the area.He is interested in the business due to the fact that peanut seed producers do not yet exist NTT, especially in Flores. Farmers usually only use local seeds with low productivity. To develop this business, CV. Anjas has undertaken the following activities: producing seeds, promoting seed excellence, making demo plot, organizing peanut farmers' meetings, and conducting assistance on how to cultivate and handling good and true peanut yields to peanut farmers in Nagekeo and Ngada district.
	Partnership Roles	PRISMA supports CV Anjas in production of Hypoma 2, Lurik, and improved local seed and develop sales and distribution channels (sales agents/retailers) in Nagekeo and Ngada districts and promote and distribute their seeds among target groups.
Mung Bean EJ	**Intervention 1**	**Promoting Certified Seeds**

	Partner	UD. Sumber Rejeki
	Description	UD. Sumber Rejeki, which is located in Gresik, East Java, has been a certified nursery of BALITKABI, and has been operating since 1987. This nursery mainly breeds seeds for paddy, peanut, and mung bean, mostly to support government's demand. Currently, mung bean varieties produced are Vima 1, Vima 3, and Walet.
	Partners' Rationale	UD. Sumber Rejeki is interested to expand their production and distribution of Vima 1 variety mung bean seeds to Madura. They are willing to produce a smaller unit packaging (5 kg) to match smallholder farmers' needs. The packaging will also be supported with an added information on the seed planting methods.
	Partnership Roles	PRISMA supports UD. Sumber Rejeki in identifying the distribution channels as well as promotional activities such as demo plots and farmers' meeting.
	Intervention 2	**Promoting the Use of Organic Fertilizer for Mung Bean Fertilizer**
	Partner	PT. Indo Acidatama
	Description	PT. Indo Acidatama is a company that produces agri-chemical products such as organic fertilizers. The company is located in Solo and has been operating in chemical and fertilizer industry since 1983
	Partners' Rationale	PT. Indo Acidatama is interested in distributing their organic fertilizer to mung bean farmers in Madura. They agreed to provide their agronomists for research plot, demo plots, and farmers meeting in order to give capacity building on organic fertilizer usage for mung bean.
	Partnership Roles	PRISMA facilitates PT. Indo Acidatama in identifying the distribution channels as well as promotional activities such as demo plots and farmers' meeting.
Cashew NTT	**Intervention 1**	**CV Peduli Kasih**
	Partner	CV Peduli Kasih
	Description	CV. Peduli Kasih is the major player for agri-inputs trade in Sumba that owned by Ny. Feni. The company is based in Waingapu, East Sumba, NTT.
	Partners' Rationale	CV Peduli Kasih id interested to enter the Cashew sector for selling the product as its new business line. By investing through the demoplot and promotion CV. Peduli kasih spread the market in two district initially which are East Sumba and Southwest Sumba.
	Partnership Roles	CV Peduli Kasih, the major player for agri-inputs trader in Sumba, will have an agreement to collaborate with intermediary service providers to develop technical capacity as maintenance and plant protection services provider, with providing business support via provision of promoting material and supply of input needed - as a part of the business agreement between CV Peduli Kasih and the services providers. This will open a new market (cashew farmer) and increase turnover for

		CV Peduli Kasih. In the same time, service provider will have a new source of income as well as increasing cashew farmers' productivity and income from better yield. PRISMA supports capacity building and provide networks of ISPs to Peduli Kasih.
	Intervention 2	**PT Novelvar**
	Partner	PT Novelvar
	Description	PT Novelvar is an agri-inputs producer based in Jakarta. Two of their main products (Terra and Silika) applicability are proven to increase yield of many crops, including cashew.
	Partners' Rationale	PT Novelvar initially enters NTT markets in East Sumba with small scale of demoplots for paddy and cashew. Since their products are applicable to various crops, easily applied by farmers, and affordable compared to other similar products, PT Novelvar through this intervention can expand their market across Sumba and Flores. PT Novelvar also intends to develop farmers' knowledge and financial capacity so farmers can benefit from technology and products they promote.
	Partnership Roles	Through this intervention, PT Novelvar will conduct promotion activities such as establishing demoplot, training, and direct presentation to identified intermediary service providers (ISP), farmers, local government and their extension staffs. ISP were assessed and selected as retailers who will extend cultivation knowledge and promote of Novelvar's technology and products, reaching out farmers within their networks. PRISMA provide networks of ISPs and support promotional activities.
Coconut NTT	**Intervention 1**	**Organic coconuts for Virgin Coconut Oil (VCO) production**
	Partners	CV Nusa Permai
	Description	CV Nusa Permai is an exporter of virgin coconut oil sourced from organic coconut
	Partners' Rationale	Demand of VCO in the international market has been continuously increasing. As one of the major VCO exporter, CN Nusa Permai aim to expand their business in order to fulfill such market demand. They aim to strengthen the supply of VCO and to secure the supply of fresh organic coconut as the raw materials. They will do this by developing business partnership with potential local VCO producer as the Intermediate Service Provider (ISP), and by giving premium price to organic coconut farmers.
	Partnership Roles	CV Nusa Permai takes the lead in building the capacity of coconut farmers to be registered as organic coconut producers. The company will guide and finance the certification processes which aim to guarantee fresh organic coconut supply from the farmers. As part of a newly developed business, CV Nusa Permai will collaborate with two local ISPs who will establish a commercial VCO production house. The new VCO factories will be set up in Maumere and Adonara and are expected to accommodate production of VCO sourced from fresh organic coconut farmers in the surrounding areas. PRISMA have been supporting CV Nusa Permai in selecting suitable location for organic certification, disseminating the VCO production plan to farmers and facilitating both CV Nusa Permai and the ISPs in developing business partnership.

Beef NTB	Intervention 1	Production and Supply of Commercial Feed to Beef Cattle Farmers
	Partner	PT Bintang Pribumi Tulen; UD. Imama
	Description	PT Bintang Pribumi Tulen is a maize processor, maize trader, and inter-island cattle trader in Lombok. It has been working for years in maize processing and trading business. From the maize business itself, the company has a lot of waste agriculture products and resources. The company has a little experience in cattle feed production using the waste product of maize for his own cattle. By looking at the market potential of concentrate feed business for cattle fattening, as no one sells commercial concentrate for cattle fattening, the company started new business to produce and sell concentrate feed to the market (cattle farmers). UD. Imama is a milling company that mills crops including rice, maize, and soya bean. It has access to raw materials of concentrate feed because of its business as a miller. The company is a supplier of intermediate feed product to PT. Bintang Pribumi Tulen, and has also been commissioned by PT. Bintang Pribumi Tulen to produce cattle feed. UD. Imama has also been a small producer of fish feed for a few years. Looking at the market potential of concentrate feed for beef cattle in Lombok, the company started a new business to produce and sell concentrate feed to cattle farmers.
	Partners' Rationale	In order to start the new business of producing and selling concentrate feed to cattle farmers, PT Bintang Pribumi Tulen and UD. Imama are willing to provide benefits to the farmers through promoting concentrate feed through demo plots. And in developing a wider distribution channel, the company will work with inputs shops, cattle traders, and agriculture collectors into the system.
	Partnership Roles	PRISMA will support the company in: • mapping potential distribution channel • developing strategic business plan and marketing plan • developing training modules and design on use, application and benefit of commercial feed • delivering training • designing promotion material and promotional activities.
Cocoa Papua	**Intervention 1**	**Increase productivity of cocoa in Papua**
	Partners	CV Kakao Kita & PT Bumi Subur Makmur Abadi
	Description	CV Kakao Kita is an export oriented small local company, mainly export to Japanese market and has focused on natural produced cocoa beans, adopting “People to People” trade approach. PT Bumi Subur Makmur Abadi is established in 2000 and currently is the biggest cocoa trader in Papua.
	Partners' Rationale	CV Kakao Kita has new increased demand therefore is willing to increase the buying volume and has plan to expand their area of operation.

		PT Bumi Subur Makmur Abadi is interested with the business model that has been developed by PRISMA and YPPWP, and plans to expand and develop its collectors by giving training and credit to selected collectors so that they can promote GAP and give assistance to cocoa farmers in Papua.
	Partnership Roles	The private sector partners will be supported in developing modules (or adjusting existing modules to the local context) that can be used to train the ISPs in setting up a demo plot, provide side grafting services and introduce farmers to technical information in good agriculture practices on maintaining the farm, using or producing the fertilizer as well as post-harvest handling. Also, they will get help in selecting the right ISPs (collectors – most of them cocoa farmers themselves, and others – lead farmers) and developing modules to strengthen the business of ISP. Once this has proven to be successful, the PSP will involve in special activities for creating demand for the side grafting services. Most of the ISPs (mainly those ISPs that have an own cocoa garden) will set up a demo plot to promote and provide their services while at the same time giving information to the farmers on how to best cultivate cocoa. Depending on the demand, the ISPs will also give embedded service on the use of fertilizer - along with buying access information (incl. finance) and post-harvest handling. The PSP will ensure that the ISPs have the skill and knowledge to do so.
	Partner Contribution	CV Kakao Kita has agreed to contribute IDR 270.375.000 and PT Bumi Subur Makmur Abadi has agreed to contribute IDR 160.303.000 - in strengthen the business of ISPs while YPPWP will focus more in develop business model between CV kakao kita, PT Bumi Subur Makmur Abadi, and ISP, hiring consultants/ expert in develop GAP material/ modules, promoting ISP`s business.