

An Introduction

IPNI COCOA CARE PROJECT

Sustainable Intensification



IPNI CC project cocoa farmer Pak Barata in Soppeng, Sulawesi.

Cocoa in Sulawesi, Indonesia

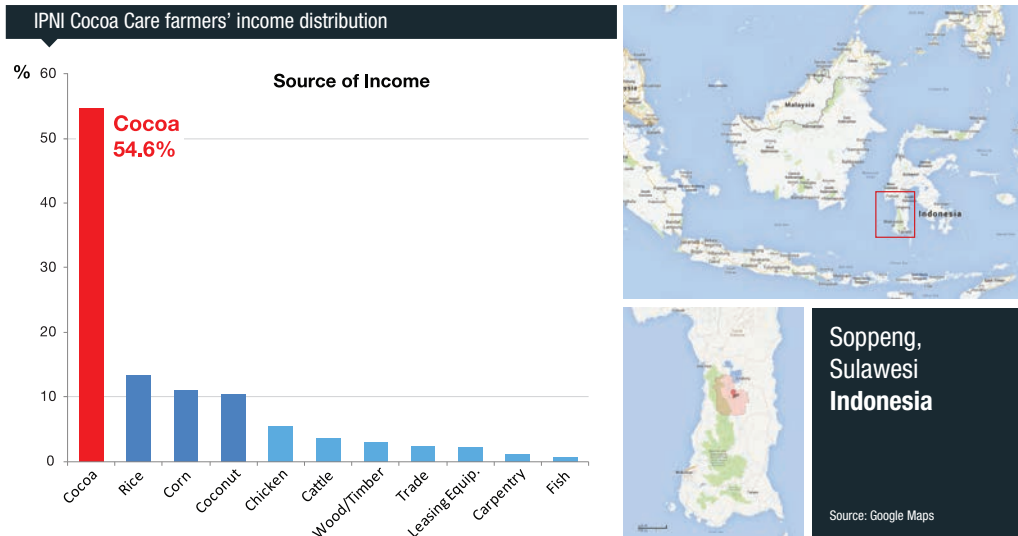
Sulawesi is the heart of Indonesia's cocoa production, accounting for 65% of the nation's output. At the end of 1990s, Indonesia's cocoa production stood at almost 700,000 tons per annum. By 2013, however, pests, diseases and poor farm management have reduced cocoa production to about 420,000 tons per annum. Farmers in Sulawesi have poor knowledge of cocoa farming with very little farm inputs such as fertilizers. They also have no easy access to finance and knowledge. Many cocoa farmers are in danger of being trapped in a downward spiral.

Global demand for cocoa is projected to outgrow production for the next 15 years. Yet despite such robust market demand, many smallholder cocoa farmers in Sulawesi continue to struggle, with some on the verge of giving up.

Cocoa yield in Sulawesi averages around 600 or less kg/ha/year. This compares poorly to commercially-possible yields of over 3 t/ha/year and recorded top yield of 6 t/ha/year¹, suggesting there is significant potential to improve harvest for Sulawesi's cocoa farmers.

Farmers in Soppeng, Sulawesi have limited training and knowledge in cultivating cocoa. Their source of knowledge traditionally comes from within the farming community with government support irregular at best. The farmers have no reliable source for technical solutions or new knowledge.

¹ Bosshart & Uexkull (1987).



Cocoa is a big part of these farmers' livelihood. A participatory field survey in 2014 revealed cocoa's dominating role in the portfolio of income streams for farming families. Families that participated in the survey have a quantitative understanding of the significance of cocoa farming amongst other activities contributing to their wellbeing.

International Plant Nutrition Institute (IPNI) - Southeast Asia Program and Cocoa Care have teamed up to solve the aforementioned challenges by developing a community-focused training and support network, guided by IPNI's scientific approach and know-how in soil and nutrient management.

Cocoa Care - A Model for Sustainable Change

Cocoa Care is a scalable sustainability program aimed at raising the living standards and productivity of cocoa farmers in Sulawesi, Indonesia. Funded by private and institutional sponsors, it helps poor farming families achieve economic sustainability by providing up-to-date farm management techniques and community support.

Cocoa Care is helping farmers rehabilitate old or damaged cocoa farms and gain technical knowledge. This includes providing free transportation for

farmers to attend Mars Cocoa Academy at Tarengge, East Luwu, where they learn about Good Agricultural Practices (GAP) and farm management.

Cocoa Care is managed by PT Community Solutions International (CSI), an Indonesian Foreign Investment Company based in Bali, Indonesia with the aim of developing long-term, sustainable business solutions that generate new or alternate livelihood opportunities for marginal communities. It is not affiliated with any private company or government programs. CSI is led by Kate Janetski, with Noel Janetski and other local and international cocoa experts, as advisors to the Cocoa Care program. Noel had been an executive at US-based chocolate, food and drink conglomerate Mars for 33 years and has 18 years of working experience in Sulawesi. He is currently based in Makassar, Sulawesi.

Farmers Darwis and Aris were struggling until they attended Mars Cocoa Academy. Guided by Noel, they are today "Cocoa Carers", highly-trained independent farmers who help other farmers rehabilitate their cocoa farms while acting as a community bridge to Cocoa Care. Their nurseries supply seedlings for Cocoa Care farm rehabilitation activities.

Tenri (left), farmer in Cocoa Care program with improved pod setting. Darwis (right), a farmer and Cocoa Carer.



Suprpto is a Cocoa Monitor living in Soppeng and has spent many years working in the cocoa community. He focuses on collecting field data while providing additional support to cocoa growers. By building a sustainable farmers' support network such as this, Cocoa Care has the reach to work with farmers based on mutual trust and respect.

IPNI Cocoa Care - Knowledge for Change

Background

IPNI Cocoa Care (IPNI CC) is a joint project between Penang, Malaysia-based International Plant Nutrition Institute (IPNI) Southeast Asia Program and CSI Cocoa Care. IPNI engages Cocoa Care on soil rehabilitation; having identified this as an opportunity to develop sustainable intensification of cocoa systems based on Good Agricultural Practices (GAP) including nutrition, by using farmer-led experimentation as a mechanism to increase cocoa yield and quality. Ultimately, this will provide farmers with higher income.

Farmer Mustari applying GAP and IPNI fertilizer treatment at his farm with more cocoa flowers and pods.



At the same time, the neighboring farm not in IPNI CC project has no cocoa flowers or pods. It is gloomy.



IPNI CC's on-farm experimentation will **1** Quantify nutrition contribution to yield and quality improvements, **2** Quantify market potential for fertilizer, **3** Develop a market responsive, farmer-led model for sustainable intensification.

The Cocoa Care team conducts farmer identification, procurement, field trials implementation and monitoring. IPNI provides guidance on scientific methods, statistical analysis of results and managerial oversight.

Scalable and Sustainable Intensification Model

All farmers experiment to improve their fields as part of their normal practice. The IPNI CC approach is built on this experimentation mindset.

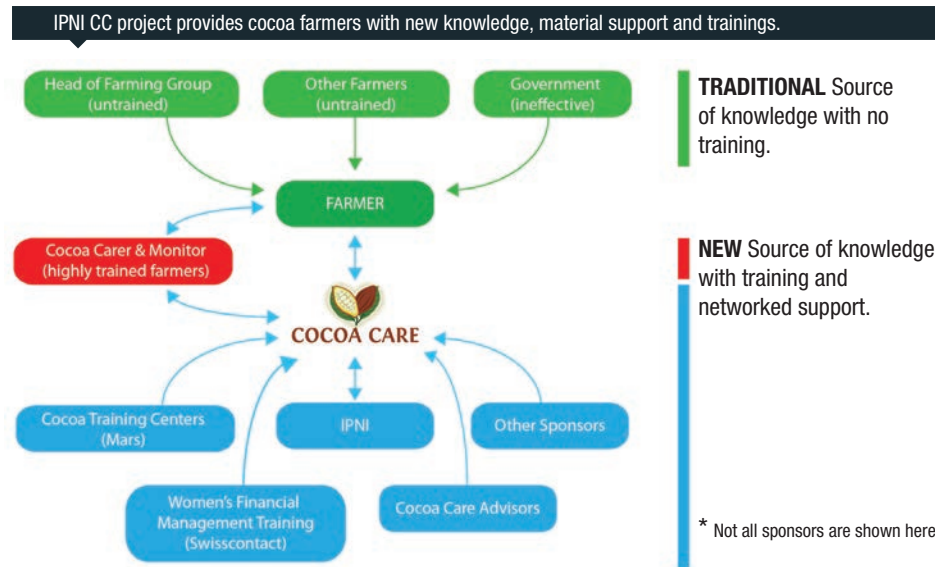
Farmers' experimentation takes two forms: **1** The deliberate process of choosing factors about which farmers want more knowledge and **2** Heuristic - a process of trying things that seem like a good idea.

Both approaches are valuable. Farmers will interpret the results of their experimentation with their level of knowledge and competence. Results are then shared between farmers and a successful farming practice spreads organically.

Unfortunately, the success of such experimentations, and the possibility of subsequent application across large areas, is only as good as the knowledge base required for the correct interpretation of results. This has been exemplified by the situation in Sulawesi: while there is a strong market for cocoa, farmers were not able to respond with higher supply because they lacked the necessary knowledge to improve their harvest.

This is where the Cocoa Care model intervenes. Cocoa Carers are the educational bridge that connects farmers on the ground with Cocoa Care's network of supporters, including IPNI. These educators are well-trained in GAP, conducting GAP training, pests and disease identification and remedies, plant propagation technologies (grafting), nursery management and composting.

To develop a process for sustainable intensification in cocoa farming, IPNI CC is investing in **1 Farmer Training**, **2 Tree Replacement**, **3 Tree Rehabilitation** and **4 Soil Rehabilitation**. These four integrated programs were designed to ensure long-term, sustainable improvement in the cocoa farming.

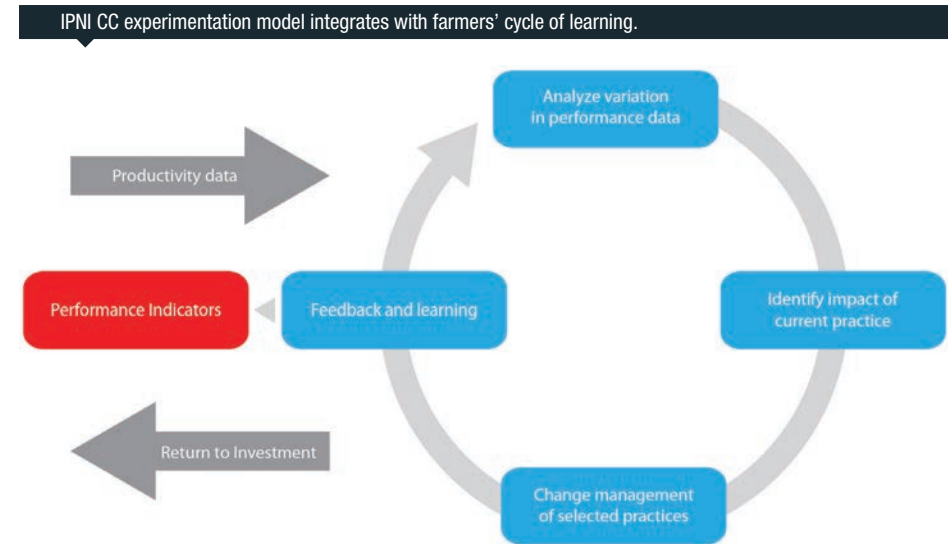


IPNI CC project supports farmers' experimentation with insights gained from scientific analyses of production data. As more data is collected, so will the quality of analyses. IPNI CC will use information and communication technologies to compile a wealth of data for interpretation.

This approach then becomes a scalable intensification process which draws from an increasingly broader range of information from the rapidly expanding local production database. The approach extends from within-field analysis of individual decisions to the analysis of entire systems using highly customizable data queries.

Enabling On-farm Experimentation

Farmers in IPNI CC project will have their cocoa farm split into two plots. The first plot (with control trees coded red) only implements Good



Agricultural Practices (GAP). The second plot (with trees coded in blue) is implementing GAP plus IPNI fertilizer treatment program. In each plot, approximately 100 trees were selected and marked with respective colours that are monitored on bi-weekly basis.

This project involves active participation of farmers, Cocoa Carers and Cocoa Monitors in a cycle of implementation, monitoring, analysis and data interpretation. Following each cycle, the results are presented back to the farmers in an easy-to-understand manner, whereby further adjustments to farm practices and soil treatments are considered. Cocoa Carers and Monitors are crucial in the process: they discuss and interpret results directly with farmers.

IPNI CC monitors productivity and impact by using handheld tablets with mobile Internet connectivity, cloud-based storage and database systems, front-end dashboard for data entry and reporting. Photos of field and plant conditions are taken and uploaded onto designated folders to track each farmer's progress. Application of field technology is only possible with a reliable ground team such as Suprpto (Cocoa Monitor), Aris (Cocoa Carers) and Darwis (Cocoa Carers).

Initial Results from the Sustainable Intensification Process

Preliminary field data for the first 6 months from 25 smallholder farmers were very encouraging. All farmers were motivated by the higher number of flowers and pods on their cocoa trees compared to the same period a year ago.

GAP fields have shown significant improvements compared to pre-program condition. GAP fields with fertilizer treatment have produced even better preliminary results with a few farms showing outstanding progress. Some

farms have even reached pre-program annual harvest within the first 6 months of IPNI CC project, with forecast harvest projected at around 2 t/ha/year. Farmers could see improvements generally within 3 months of implementing GAP and IPNI nutrient management program.

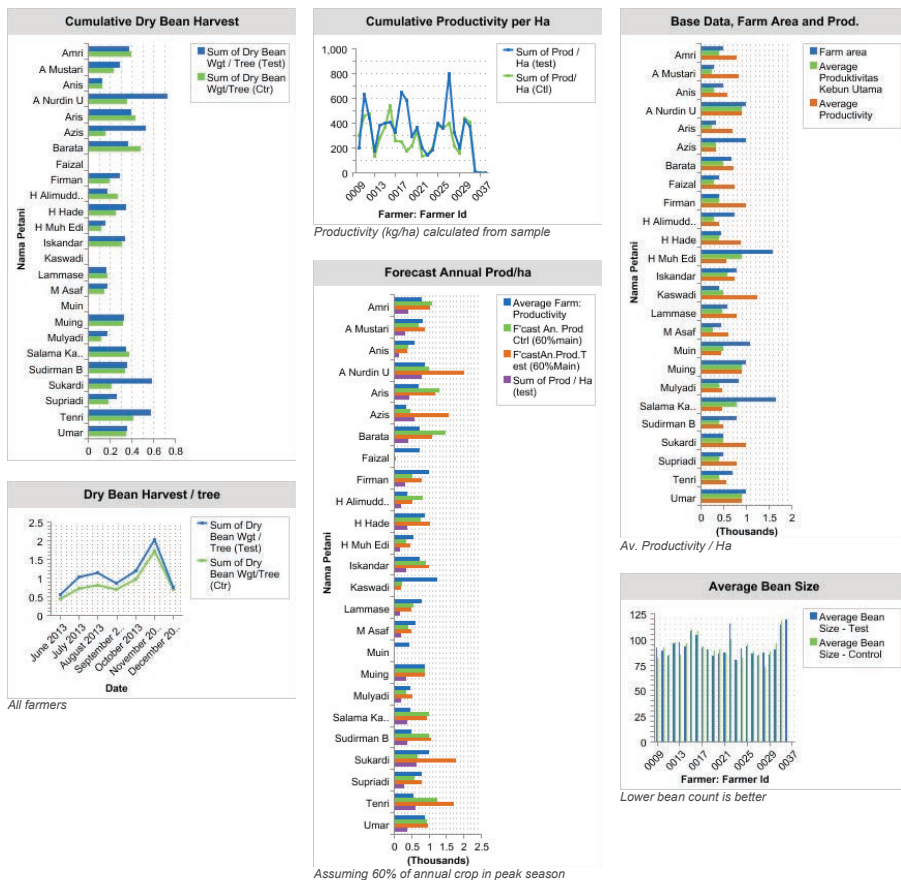
Farmers' sentiments are visibly upbeat, as the field conditions and productivity results have rekindled their faith in cocoa. Many are highly motivated to participate in IPNI's in-field and in-class programs to learn more about the concept of 4R Nutrient Stewardship (application of the right source of nutrients at the right rate, right time and right place for sustainable plant-based production systems). Current in-field training involves the development and use of compost. Participating farmers with additional plots not involved in the programs are beginning to implement GAP and applying fertilizer at their own expense based on what they have learned.

There has also been a snowball effect on surrounding non-participating farmers in terms of technical knowledge and motivational support - IPNI CC participants are themselves sharing their new-found knowledge by helping their neighbors implement IPNI CC GAP and nutrient management programs. IPNI CC has since expanded to work with this secondary group and increased the project's reach to 40 farmers, with the aim to mobilize additional funds from IPNI partners to enable more farmers' participation ■

Examination of GAP control farm with farmer Alimuddin and IPNI SEAP Director Dr. Thomas Oberthür.



IPNI CC Farmers dashboard (January 12, 2014)



Sudirman Story

Cocoa farmer Sudirman laughed and explained that despite the efforts he put into his farm, he was doing so many things wrongly including randomly cutting off branches. Since IPNI CC project, he has attended the Mars Cocoa Academy and implemented proper GAP and fertilizer treatment. Today, he is seeing his cocoa farm productivity increasing. One of the essential components of IPNI CC project is to advise and help farmers like Sudirman to avoid inadvertently damaging their farms that can be detrimental in years down the road.



Suprpto - the Cocoa Monitor

Working and living in the farming community, Suprpto collects pods from farmers in the IPNI CC project to record the wet and dry weight of cocoa beans. The drying beds are setup at his house where he also has a small nursery to help farmers rehabilitate their cocoa farms. The control GAP plots are in RED and GAP plus treatment plots are in BLUE. Data collected are input into Salesforce database via Samsung Galaxy Tab 3 with mobile data connectivity.



Cocoa farmer Tenri took initiative to develop his own composting site based on what he learned from IPNI Cocoa Care programs.

Most farmers' wives manage the family finances. The project engages farmers and their spouses in briefings and productivity reviews.



Cocoa Care Team

Kate Janetski
Managing Director



Noel Janetski
Advisor



Zainuddin
Program Coordinator
Cocoa Carer



Suprpto
Cocoa Monitor



Darwis
Cocoa Carer
Cocoa Farmer



Aris
Cocoa Carer
Cocoa Farmer



Noel Janetski sharing good news with IPNI CC cocoa growers on their farms' productivity gains.



Cocoa Care Unique Operating Principles

1 Customizable Sustainability Programs for SME

Small and Medium Enterprises and individuals can now have their own sustainability programs, starting as low as US\$11.50 (Cocoa Tree Rehabilitation Pack or Re-plant Cocoa Trees) to as high as US\$20,000 (Village Sponsorship Pack or Design Your Own Program). Cocoa Care programs are designed to be more cost effective with longer impact than standalone program. Sponsors are provided with frequent reports of farmers' progress and development. 77% to 80% sponsorships are designated to farm activities with approximately 20% designated for administration, logistics and field monitoring.

2 Transparent and Non-contractual Relationship with Farmers

Cocoa Care does not have any contractual relationship with farmers. Farmers participating in programs are on voluntary basis. The whole project was developed based on cultivating mutual trust and understanding with cocoa farmers. They are free to sell their harvested cocoa to any collector who offers the best price.

3 Family as the Farming Unit

Cocoa Care's focus is beyond the individual working on the farm. The program embraces the whole family as a single farming unit. This allows Cocoa Care to develop sponsorship programs based on family needs and alleviating farmers' difficulties usually not observed by outsiders.

A majority of farmers' wives manage the family finances and have significant influence over household welfare. This insight allows Cocoa Care to work on providing trainings in financial planning as well as family planning for the women in cocoa farming communities.

4 Leveraging Networks

By leveraging and mobilizing existing resources, training centres and infrastructure, Cocoa Care supplemented farmers' traditional source of knowledge by providing a coordinated link to established network of private, corporate, governmental and non-governmental institutions including Australian Centre for International Agricultural Research (ACIAR), the Indonesian Cocoa Research Institute (ICCRI), the International Finance Corporation (IFC), USAID, the World Cocoa Foundation, Swisscontact Foundation and large companies like Mars, Incorporated.



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