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Australian Centre for International Agricultural Research

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Contents

List of Figures

List of Tables

List of Abbreviations

ACIAR	Australian Centre for International Agricultural Research
AIPD	Australia Indonesia Partnership for Decentralisation
DFAT	Department of Foreign Affairs and Trade
DGLAHS	Directorate General of Livestock and Animal Health Services
DISPENDA	Dinas Pendapatan Daerah
EI-ADO	Eastern Indonesia - Agricultural Development Opportunities project
EJ	East Java
CIP	International Potato Centre
CIP-ESEAP	International Potato Centre for East, Southeast Asia and the Pacific
CRIFC	Central Research Institute for Food Crop
DAFF	Department of Agriculture, Fisheries and Forestry (Australia)
DFID	Department for International Development (UK)
GoI	Government of Indonesia
FPU	Fish processing unit
IFAD	International Fund for Agricultural Development
Ha	Hectares
IFC	International Finance Corporation
IUCN	International Union for the Conservation of Nature
JICA	Japan International Cooperation Agency
MoA	Ministry of Agriculture (Indonesia)
MLA	Meat and Livestock Australia
OPV	Open pollinated variety
RPM	Research Program Manager (ACIAR)
NTT	Nusa Tengarra Timur or East Nusa Tengarra
NTB	Nusa Tengarra Barat or West Nusa Tengarra
MMAF	Ministry of Marine Affairs and Fisheries (Indonesia)
MSY	Maximum sustainable yield
NTFP	Non timber forest products
MoT	Ministry of Transportation
SADI	Smallholder Agribusiness Development Initiative
SME	Small-medium enterprise
SNI	Indonesian National Standard
t/ha	tonnes per hectare
TPC	Total place count (milk)
UPWARD	Users Perspective with Agricultural Research and Development

1 Preface

This document is a final report, capturing the activities undertaken by the project team to analyse, rank and select five lead commodity chains with the highest potential to improve the net incomes of a large number of poor farmers in the study area and contribute to the direction of further Department of Foreign Affairs and Trade investment through the Australia Indonesia Partnership for Decentralisation (AIPD).

Authors of this final report are Mr Stuart Higgins and Ms Chaseley Ross, and acknowledgement is made of the input to the various documents that were developed in the completion of the project objectives. Most notably this includes Mr Emmanuel Santoyo Rio, Dr Scott Waldron, Mr Teddy Kristedi, Ms Rebecca McBride, Mr Stuart Brown, Ms Rouja Johnstone, Mr Fred Levitan and Mr Matt Zimmerman.

The project team acknowledges the role of the late Dr Tim Purcell in the development and initial stages of this project, and his lead role in the development of the Markets for the Poor framework that is used to underpin this project and subsequent associated SRAs.

The project reference group has been an invaluable source of information and guidance throughout this project.

The views expressed in this report are those of the consultants and do not necessarily reflect the views of ACIAR or that of the Government of Indonesia.

July 2012

2 Executive Summary

This SRA project is the first phase of a larger project called Analysing Agribusiness Development Opportunities in Eastern Indonesia (EI-ADO). ACIAR has commissioned research to identify five commodity value chains to be the focus of a new Department of Foreign Affairs and Trade (DFAT) program called Australia Indonesia Partnership for Decentralisation – Rural Economic Program (AIPD-Rural).

The goal of AIPD-Rural is to increase the income of more than one million poor farmers by 30 per cent. It will promote value chain competitiveness through better farm practices, better access to input and output markets and an enhanced business enabling environment for agribusiness.

AIPD-Rural employs a commodity focused approach and will support the strengthening of value chains for lead commodities which provide opportunities to improve farmer income in target areas. AIPD-Rural will target the most significant constraints to rural income growth in five provinces of Eastern Indonesia including East Java (EJ), Nusa Tengarra Barat (NTB), Nusa Tengarra Timur (NTT), Papua and West Papua. Four districts will be selected from each province (20 districts in total), for program intervention.

The aim of the larger ACIAR EI-ADO study is to identify agricultural commodity value chains and agribusiness development opportunities with the most potential to increase incomes of poor farmers in Nusa Tengarra Barat, Nusa Tengarra Timur and East Java.

The aim of Phase 1 of EI-ADO, is to analyse, rank and select five lead commodity chains with the highest potential to improve the net incomes of a large number of poor farmers in the study area.

The two main activities to be undertaken in this phase are:

(i) A Socio-Economic Review; and

(ii) The identification and prioritization of value chains for further study.

Phase 2 of EI-ADO will undertake five individual Value Chain studies that will analyse agribusiness development constraints and opportunities in detail for the lead commodities identified through Phase 1 of the project.

During the initial project reference group workshop held in Canberra in December 2011 a number of commodities were selected for further exploration, namely staple food crops, livestock, fruits and vegetables, plantation crops, community forestry and aquaculture (See the full list in Table 2). In this meeting it was also agreed that the framework to underpin the project would be the *M4P (2008), Making Value Chains Work Better for the Poor: A Toolbook for Practitioners of Value Chain Analysis.*

Based on this pre-selection, a literature review of each commodity and a socio-economic review were undertaken with the aim of informing the selection of five priority value chains for further study. These research pieces would provide a review of agricultural production, markets, demographics and poverty in NTT, NTB and East Java.

In March 2012 the Indonesian Project Coordinator conducted a consultation and awareness raising ‘road show’ of meetings across the three project provinces. The aim of the road show was to fully engage and establish open lines of communication between the project and the local stakeholders. This series of meetings provided some extremely

useful information about commodity priorities at the provincial and district levels within the project area. This information was fed into the prioritisation process.

On the basis of the starting criteria suggested in the M4P Toolbook and the specific focus of this research, the following particular criteria were developed and consulted prior and during the Lombok workshop to assist the selection of commodities for further study:

Poverty alleviation and sustainability of the economic activity

1. Is there potential to reach large numbers of poor households in production and post-production?
2. What is the potential to increase income for producers?
3. Does the chain/commodity fit with the focus of Government programs and priorities and other donors?
4. How project-crowded is the sector? To what extent are sector needs addressed by the current donors?
5. What is the ecological feasibility?
6. Is it environmentally sustainable?
7. Is it economically sustainable?
8. External risk

Structure of the value chain

1. Is there potential for post-harvest productivity/ value-added?
2. What is the potential for improving market access?
3. Is there sufficient infrastructure availability?
4. What is the scalability and transferability potential?

Once the criteria were agreed upon, relative weightings of importance were developed. Different criteria were allocated different levels of importance (or weighting) in the decision making process, reflecting the criteria's greater influence in selecting the commodity.

Based on this information a stakeholder workshop was held to analyse, rank and select at least five commodity chains with the highest potential to improve the net incomes of a large number of poor farmers in the study area, using as a basis the literature reviews of 12 commodities and the findings of the socio-economic review.

Further, national and international specialists were identified to conduct five lead commodity value chain analysis studies in 2012, and SRA proposals for at least two value chain analysis studies were completed and submitted.

A number of standalone documents have been produced through the activities of this project. These documents include:

- Agribusiness development opportunities in Eastern Indonesia – socio economic review.
- Analysis of agribusiness opportunities in Eastern Indonesia - a literature review of key commodities.
- Technical commodity briefs for the 16 commodities studied in the literature reviews.
- Two SRA proposals for lead commodity studies.

The requirement for the SER was to inform the selection of priority value chains for further study. The SER focussed on NTT, NTB and East Java and their selected districts and provides a summary of unique characteristics, issues and trends for each province.

The objectives of the SER were to:

- Review the social and economic characteristics of the selected provinces and districts,
- Highlight the areas for agricultural development identified by local governments, and
- Inform the selection of five commodity value chains for further research, in combination with the Literature Reviews and Commodity Briefs.

The SER was based on secondary data gathered by data collectors within each province and supported by the project team. The data was collected through the engagement of researchers at the local level and the main source of statistical data used is the Bureau of Statistics, the Province in Figures annual reports compiled by local government and key donor reports that have been identified.

Detailed literature reviews were done for the 16 commodities that were shortlisted by the project reference group in December 2011. A template report was prepared and consultants engaged to identify and review existing literature relative to the commodity and Indonesia specifically. ACIAR RPMs were used as key reference sources.

Subsequent to the extensive literature reviews, the project team consolidated the commodity information identified by the literature reviews into shorter commodity technical briefs prior to a stakeholder workshop held in Lombok in April 2012.

At this workshop, the commodity technical briefs were presented for feedback, and input from the group recorded on the draft selection criteria and key data gaps in the baseline information (commodity reviews). The group conducted a preliminary mapping of the 16 commodities within each of the three study provinces.

The project reference group provided the instruction to ACIAR and the project team that there was sufficient evidence and support to select two of the five lead commodities. The two commodities selected were beef cattle and mango.

In June 2012 in Sanur, the project team presented for discussion the draft scoring of commodities by criteria and the evidence base for the scores. The reference group finalised the selection criteria and weightings, and were then asked to test the logic of the draft scoring assigned by the project team. Where objective data was presented, some scores were modified. The ranking of commodities was then presented.

The reference group identified and discussed a number of higher order criteria that potentially could alter the selection of the final five lead commodities. These included: commodity coverage, land owners or landless, location in important poverty pockets, location in remote areas, risk/impact and horizon, gender importance, and potential for strong private sector partners.

A closed session was then held by the project reference group, who considered the commodity rankings and the higher order criteria outlined above. The reference group selected the five lead commodities during this session.

The final commodity ranking is presented in Figure 12. There are five commodities that achieve a weighted score above 3.5. These are beef cattle, mango, maize, vegetables and peanuts.

This result was presented to the project reference group for a final recommendation. The project reference group considered the ranking outcome and discussed how the higher

order criteria it had earlier identified could impact on the selection. It then presented its recommendation on the five lead commodities to be analysed in Phase 2 of the EI-ADO project. The project reference group made only one small change to commodity listing. It was considered that peanuts, soybean and mungbean were all similar in production systems and should be combined in a grain legume commodity. This resulted in the selection of the five lead commodities being: beef cattle, mango, maize, vegetables and grain legumes. Figure 13 represents the final recommendation.

The process adopted has delivered five recommended commodities from the project reference group. Two SRAs have already been funded and it is recommended that the final three SRAs be contracted.

3 Introduction

3.1 Project background

This SRA project is the first part of a larger $1 million DFAT funded project Analysing Agribusiness Development Opportunities in Eastern Indonesia (EI-ADO). In this study ACIAR has commissioned research to identify lead commodity value chains to be the focus of a new DFAT program Australia Indonesia Partnership for Decentralisation – Rural Economic Program (AIPD-Rural). The EI-ADO project will be one of a number of short studies undertaken in 2012 to inform the AIPD-Rural program.

The goal of AIPD-Rural is to increase the income of more than one million poor male and female farmers by 30 %. It will promote value chain competitiveness through better farm practices, better access to input and output markets and an enhanced business enabling environment for agribusiness.

The goal and purpose of AIPD-Rural is to contribute to Pillar 1 of Australia Indonesia Partnership Country Strategy 2008-2013: Sustainable Growth and Economic Management. The AIPD-Rural is designed to be relevant to the Government of Indonesia (GoI) national priorities as stated in the Medium Term Development Plan 2010-2014, and the Ministry of Agriculture Strategic Plan 2010-2014.

AIPD-Rural employs a commodity focused approach and will support the strengthening of value chains for lead commodities which provide opportunities to improve farmer income in target areas. AIPD-Rural will target the most significant constraints to rural income growth in five provinces of Eastern Indonesia including East Java (EJ), Nusa Tengarra Barat (NTB), Nusa Tengarra Timur (NTT), Papua and West Papua. Four districts will be selected from each province (20 districts in total), for program intervention.

3.2 Project aims

The aim of the larger ACIAR EI-ADO study is to identify agricultural commodity value chains and agribusiness development opportunities with the most potential to increase incomes of poor farmers in Nusa Tengarra Barat, Nusa Tengarra Timur and East Java. EI-ADO will be undertaken in two phases between February 2012 and March 2013.

The aim of this project, Phase 1 of EI-ADO, is to analyse, rank and select five lead commodity chains with the highest potential to improve the net incomes of a large number of poor farmers in the study area.

The two main activities to be undertaken in the project are:

(iii) A Socio-Economic Review; and

(iv) The identification and prioritization of value chains for further study.

On completion of this project, Phase 2 of EI-ADO will undertake five individual SRA projects that will analyse agribusiness development constraints and opportunities in detail for the lead commodities identified through this project.

3.3 Project objectives and scope

The initial scope of potential agricultural commodities considered by the study was identified during the first project reference group workshop held in Canberra, December 2011. It included staple food crops, livestock, fruits and vegetables, plantation crops, community forestry and aquaculture. It focused on the socio-economic review and analysis of agricultural production, markets, demographics and poverty in NTT, NTB and East Java.

The overarching EI-ADO study has the following objectives:

By 31 July 2013, to have:

(i) Analysed agricultural commodity value chains linked to NTT, NTB and East Java and identified at least five with the most potential for improving incomes of poor farmers;
(ii) Analysed selected value chains and identified key factors limiting chain participation, competitiveness and income of poor farmers; and
(iii) Outlined agribusiness development opportunities and approaches for improving the efficiency, competitiveness and the income of poor farmers linked to selected value chains.

The objectives of this project were to:

1. Undertake a detailed socio-economic review and analysis of agricultural production, markets, demographics and poverty in NTT, NTB and East Java.
2. Define and calculate a range of key socio-economic measures and criteria to be applied to a broader list of relevant candidate commodities to assist the evaluation and prioritisation of lead commodities.
3. Undertake stakeholder consultations and raising awareness of the project with ACIAR RPMs and government, agribusiness, industry and research stakeholders in NTT, NTB and East Java.
4. Run a stakeholder workshop using the findings of the socio-economic review, to analyse, rank and select at least five commodity chains with the highest potential to improve the net incomes of a large number of poor farmers in the study area.
5. Identify national and international specialists for the five lead commodity value chain analysis studies to be undertaken in 2012, and complete and submit SRA proposals for at least two value chain analysis studies.

3.4 Project outputs

The project outputs to be delivered by the Collins Higgins Consulting Group in the completion of this project include:

1. A Final Report containing:
   a. The socio-economic review;
   b. Process and analysis of identification and prioritization of value chains for further study;
   c. Documentation of stakeholder consultations and workshops;
2. At least two SRA proposals for lead commodity studies.
3. CVs of technical specialists identified or engaged for lead commodity studies (SRAs 2-6).

This report comprises the outputs required as outlined above. Outputs 2 and 3 have already been delivered. Two SRA proposals have already been developed and contracted by ACIAR, and a compendium of CVs has been provided to ACIAR with CVs of technical specialists engaged or likely to be engaged in the completion of Phase 2 of the EI-ADO project.

A number of standalone documents have been produced through the activities of this project, some to meet the project deliverables and some outside the project scope. These documents include:

- Agribusiness development opportunities in Eastern Indonesia – socio economic review.
- Analysis of agribusiness opportunities in Eastern Indonesia - a literature review of key commodities.
- Technical commodity briefs for the 16 commodities studied in the literature reviews.
- Two SRA proposals for lead commodity studies.

4 Project Methodology

A number of activities occurred within the project to support the achievement of the project objectives.

4.1 Initial project reference group meeting

In December 2011 the project reference group met in Canberra. Some key decisions regarding the project were made at this meeting.

It was agreed that the framework to underpin the project would be the *M4P (2008), Making Value Chains Work Better for the Poor: A Toolbook for Practitioners of Value Chain Analysis.* The M4P approach:

- Has a lead commodity focus;
- Is evidence based, participatory, consultative, multiple input sources;
- Encourages strong Reference Group engagement and participation – guidance, technical input and recommendations; and
- Looks at the provincial level impact focus, with consideration to district level impacts/intersection.

During the Canberra meeting a long list of commodities to be investigated was developed by the reference group (see Table 1). A basic set of commodity selection criteria was also developed. The criteria included the commodity's income generating potential for poor households; its scalability and transferability; the number of households impacted (labour and production) and the commodity's social and environmental sustainability. On the basis of the reference group's experience and knowledge, this long list was then prioritised and short listed to the 16 commodities listed in Table 2.

Table 1: Initial list of commodities under consideration by the project reference group

Rice	NTFP	Cashew Nut
Beef Cattle	Soybean	Carrot
Sugarcane	Coconut	Maize
Peanut	Banana	Coffee
Rubber	Citrus	Lobster
Cassava	Mango	Mangosteen
Mungbean	Dairy	Potato
Sweet potato	Seaweed	Teak
Abalone	Fisheries (Capture & Marine)	Cocoa

Table 2: Shortlisted commodities for consideration by the project

Sweet potato	NTFP	Cashew Nut	Vegetables
Mungbean/Soybean	Beef Cattle	Seaweed	Maize
Dairy	Peanut	Banana	Coffee
Fish (Marine)	Cassava	Mango	Cocoa

4.2 Socio economic review (SER)

The requirement for the SER was to inform the selection of priority value chains for further study. The SER focussed on NTT, NTB and East Java and their selected districts and provides a summary of unique characteristics, issues and trends for each province.

The objectives of the SER were to:

- Review the social and economic characteristics of the selected provinces and districts,
- Highlight the areas for agricultural development identified by local governments, and
- Inform the selection of five commodity value chains for further research, in combination with the Literature Reviews and Commodity Briefs.

The SER was based on secondary data gathered by data collectors within each province and supported by the project team. The data was collected through the engagement of researchers at the local level and the main source of statistical data used is the Bureau of Statistics, the Province in Figures annual reports compiled by local government and key donor reports that have been identified.

The key research questions that are addressed in the SER are:

- Which agribusiness commodity chains have the most potential for improving incomes of poor farmers in NTT, NTB and East Java?
- What are the main agricultural products and markets, their production characteristics, issues, trends, geographic distribution and relative value and importance of different sectors?
- What is the current state, locations and effectiveness of important agribusiness infrastructure such as roads, ports and processing, wholesale and retail markets, plants and facilities?
- What is the state of poverty, distribution and trends and what potential is there for poverty alleviation through smallholder commercialisation? How?
- What demographic trends are occurring and how will they impact poverty reduction and agribusiness value chain growth efforts. How can non-farm enterprises and urban migration influences attempts to productivity growth and poverty alleviation of the rural poor?
- What macroeconomic, policy and political economy affect agriculture sectors and how do they affects access of poor farmers to markets?
- What emerging trends and constraints are affecting smallholder attempt at commercialisation and increased competitiveness in value chains?

The Socio Economic Review (*Agribusiness Development Opportunities in Eastern Indonesia. Socio Economic Review, Collins Higgins Consulting Group, July 2012*) provides a description of:

1. Agricultural production and markets - current situation, issues, trends, location and relative importance of different sectors.
2. Agribusiness infrastructure - location and effectiveness of important roads, ports and processing, wholesale and retail markets, input and technology providers, plants and facilities.
3. Poverty - distribution and trends and potential for poverty alleviation through smallholder commercialisation.

4. Demographic trends - trends, issues and impacts on poverty reduction and agribusiness value chain growth. The role of non-farm enterprises and urban migration to determine to what extent those factors can facilitate productivity growth and poverty alleviation of the rural poor should also be considered.
5. Macroeconomic, policy and political economy - affecting agriculture sectors and how it affects access of poor farmers to markets.
6. Smallholder commercialisation - emerging trends and constraints affecting smallholder commercialisation, and
7. Recent major policy and/or regulatory considerations affecting agricultural development, especially in Eastern Indonesia.

As can be expected there are gaps in the available data that limit the potential for analysis. These information gaps mainly relate to specific information on:

- Markets – number and location of main and secondary markets in each province and district, as well as average distance to markets.
- Prices of main commodities – trends and changes in prices overtime of the main agricultural commodities in different regions/provinces/districts.
- Sources of income – main sources of income of poorer households in different regions/provinces/districts.
- Number of farmers growing each commodity – detailed data on the number of households growing each agricultural commodity.
- Irrigation – amount of irrigated ha and how is it managed.

Addressing these information gaps requires further research, particular fieldwork and it is expected that the following phase of this project will be able to gather some of this information.

A summary of the key findings of the SER can be found in Section 5 of this report.

4.3 Prioritising commodity value chains

To support the data collated in the SER, specific commodity information was required in order to objectively evaluate and prioritise the commodities.

4.3.1 Commodity literature reviews

Detailed literature reviews were commissioned for the 16 commodities that were shortlisted by the project reference group in December 2011. A template report was prepared and consultants engaged to identify and review existing literature relative to the commodity and Indonesia specifically. ACIAR RPMs were used as key reference sources.

4.3.2 Selection criteria and weightings

In order for the commodities to be prioritised, selection criteria were established and then weighted. The method to define selection criteria and weightings for ranking, and finally to rank the commodities is modelled on the approach in *M4P (2008), Making Value Chains Work Better for the Poor: A Toolbook for Practitioners of Value Chain Analysis*.

In keeping with the objectives of the overall DFAT project, being poverty alleviation and achieving pro poor outcomes, the selection criteria chosen reflect the benefits to poor farmers e.g. integration of the poor into markets, product potential for growth, opportunity for scaling up, risk, number of households impacted, poverty incidence and extent.

Consideration was also given in the criteria selection process to factors such as environmental impact, long term sustainability and effects on women.

The project team conducted an objective, preliminary ranking of the commodities against the agreed selection criteria. The information collected in the commodity literature reviews and briefs, consultation feedback and the SER was the basis for the scores prescribed. The preliminary ranking and its evidence base was then presented to the project reference group for review, discussion and a final recommendation in Sanur, Bali in June 2012.

4.3.3 Commodity technical briefs

To make information more manageable, the project team consolidated the commodity literature reviews into shorter commodity technical briefs prior to the Lombok stakeholder workshop in April 2012. Whilst this activity was outside the scope of the project, the project team determined these would be more useful than the longer documents to facilitate targeted discussion and feedback from the stakeholders on the key issues surrounding the criteria for assessment and prioritisation. These briefs are contained in Section 6 of this report.

4.3.4 Stakeholder consultation

In March 2012 the Indonesian Project Coordinator conducted a consultation and awareness raising 'road show' of meetings within the project districts across the three project provinces. The aim of the road show was to fully engage and establish open lines of communication between the project and the local stakeholders. This series of meetings provided some extremely useful information about commodity priorities at the provincial and district levels within the project area. This information was incorporated into the prioritisation process.

A stakeholder workshop was held in Lombok in April, 2012. At this workshop, the commodity technical briefs were presented for feedback, and input from the group recorded on the draft selection criteria and key data gaps in the baseline information (commodity reviews). The group conducted a preliminary mapping of the 16 commodities within each of the three study provinces. Participants at this workshop and the meeting notes can be found in Appendix 1.

From this activity, the project reference group provided the instruction to ACIAR and the project team that there was sufficient evidence and support to select two of the five lead commodities for more in-depth value chain assessment. The two commodities selected were beef cattle and mango.

4.3.5 Project reference group

In June 2012 in Sanur the project team presented for discussion the draft scoring of commodities by criteria and the evidence base for the scores. The reference group finalised the selection criteria and weightings, and were then was asked to test the logic of the draft scoring assigned by the project team. Where objective data was presented, some scores were modified. The ranking of commodities was then presented. It is worth noting that the project team ranked beef and mango through this process despite these two commodities already being selected for study.

The reference group identified and discussed a number of higher order criteria that potentially could alter the selection of the final five lead commodities. These included: commodity coverage, land owners or landless, location in important poverty pockets, location in remote areas, risk/impact and horizon, gender importance, and potential for strong private sector partners.

A closed session was then held by the project reference group, who considered the commodity rankings and the higher order criteria outlined above. The reference group selected the five lead commodities during this session.

See Appendix 2 for the meeting notes from this meeting.

5 Socio Economic Review

5.1 Introduction

This socio-economic review provides a summary of the social and economic characteristics, issues and trends in three provinces in Indonesia: Nusa Tenggara Timur (NTT), West Nusa Tenggara (NTB) and East Java (EJ), and in four districts within each of these provinces, which were selected by ACIAR as potential districts on which to focus their poverty alleviation efforts. The information in this review serves to compliment the Literature Review of Key Commodities to allow an informed selection of five commodities for value chain analysis in the 12 pre-selected districts.

The socio-economic review therefore provides an overview of demographic trends in Indonesia; poverty distribution and trends; agricultural production and markets; agribusiness infrastructure; macroeconomic, policy and political economy affecting the agricultural sector; emerging trends and constraints in smallholder commercialisation; and recent major policy and/or regulatory considerations affecting agricultural development, especially in Eastern Indonesia.

5.2 Economic, social, agricultural and rural poverty context

Indonesia's 1.91 million square kilometres of land extends over 17,000 islands and it is the world's fourth most populated nation, with 237.6 million inhabitants in 2010. The population grew at 1.49% per annum between 2000 and 2010 (BPS, 2012). The average population density in Indonesia in 2011 was 124 people per km2 (up from 107 people per km2 in 2010) with large variations between provinces. The average size of household in the country is 3.9 (BPS, 2012).

The adult literacy rate in Indonesia in 2010 was 92.91%. This was 95.35 for men and 90.52 for women (BPS, 2012), with important differences between provinces.

In Indonesia life expectancy at birth (largely an outcome of health and nutrition) has been increasing in recent years, but important differences persist between provinces and between urban and rural areas. In 2010, life expectancy in the country was 70.9 years, compared to 70.4 in 2007 (BPS, 2010).

Indonesia's economy is well diversified and market-based, with a GNI per capita of US$3,005 in 2010 (BPS, 2011). Growth in GDP in 2011 is estimated at 6.46% and averaged around 5.8% (5.7 - 6.5%) per annum between 2005 and 2011 (BPS, 2011). In 2010, industry generated approximately 48% of GDP; agriculture around 15%, and services 37%. Manufacturing dominates exports, with oil and gas accounting for around 20% of exports in 2011 (BPS, 2011).

The share of the agricultural sector in the overall economy declined from 41% of GDP in 1970 to around 15% of GDP in 2011. However, agriculture still contributes significantly to Indonesia's economic growth. For instance, it accounted for around 14% of GDP between 2007 and 2010 (BPS, 2012). It also employed 42.47% of the total work force in 2011 (BPS, 2012), making it the largest sector by employment in the economy.

Indonesian agricultural production is increasingly shifting away from food crops particularly towards horticulture and estate crop production. Nonetheless, the bulk of agricultural production in Indonesia remains in food crops (Rajah and McCulloch, 2012). This shift away from food crop production has been seen across all regions, leading to weak growth in food crops across Indonesia, particularly in Java and Eastern Indonesia, although Java still dominates national agricultural production.

The decrease in contribution from the food crops sub-sector to agriculture can be attributed to a number of factors, including limited land availability and poor land quality, deteriorating infrastructure, poor water management, inadequate knowledge sharing and training/extension services, poor post-harvest handling and processing, poor governance and rural institutional support, and inappropriate decentralisation policies.

Horticultural production, i.e. vegetable and fruits, has increased in recent years. However, product quality and its value-added processing still face many problems and need further improvements to meet client demand and to expand domestic and export market demand.

Such improvements are of high strategic priority as the vegetable and fruit consumption level in Indonesia is still lower than national dietary standards and FAO's recommendation. Local products have difficulties competing in quality, diversity and/or price with imported products, especially in supplying medium/high-level income consumers and modern supermarkets (GOI, et.al. 2009).

Trade and market liberalisation has also encouraged diversification into higher-value export crops and government spending on agriculture services, irrigation, and research on specific high-value crops. Agricultural research investment in estate crops has been much higher than in food crops. Therefore, regions with estate crops have generally benefited from better government support to improvements in productivity.

By 2005, the largest land use category was estate crops (oil palm, cocoa, rubber, etc.). These products (including rubber, palm oil, shrimps, coffee, copra, cocoa and livestock) constituted 12% of total exports in 2006.

Agricultural value added per worker increased from about US$450 in 1970 to over US$700 in 2000 (1995 prices). However, nearly all the growth in productivity occurred between 1968 and 1992. By the mid-1990s, agricultural growth again relied almost entirely on bringing new land under cultivation (IFAD, 2007).

While actual potential yields will to some extent depend on the specific environmental conditions prevailing in each province, large gaps between high yield provinces and the rest suggest ample scope for raising Indonesia's agricultural productivity. If yields across Indonesian provinces converge towards the yields found in the best performing provinces for each crop, large gains in agricultural productivity could be realized.

Although Indonesian agriculture has diversified away from food crops, overall food security has improved. The hunger index score**1** for Indonesia has declined from a high of over 28 in 1981 to 13.2 in 2010 (IFPRI, 2010). According to Rada and Regmi (2010), if the current trends in food availability, agricultural trade, and economic development continue, the hunger index is expected to decline below 2 by 2020.

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[1] The hunger index is an equally weighted index of three measures: the proportion of undernourished population as a percentage of the total population; the prevalence of underweight children under the age of 5; and the under-5 mortality rate (IFPRI, 2010).

The total calorie share of starchy roots—a low-value product—has been consistently replaced by high-value foods, such as vegetable oils, meats, fish/seafood, and fruits and vegetables. Indonesians are also increasingly purchasing packaged food with some value added, rather than purchasing unprocessed products from local wet markets. In 1998, less than 22% of packaged food was sold in standardized retail outlets, such as supermarkets, hypermarkets, and discount and convenience stores, rather than in independent corner “mom-and-pop” stores. In 2008, over 34% of sales were through standardized stores (Rada and Regmi, 2010).

Indonesia’s agricultural exports have focused primarily on tropical perennial products in which it has comparative advantage, whereas its imports have included feed for its growing poultry sector (in response to greater consumer demand for meat) and food for its citizens.

Indonesia’s agricultural export value has grown on average almost 9% annually, from a base of nearly $900 million in 1975 to nearly $20 billion in 2009 (FAO, 2011). Growth has been driven by increases in tropical perennial crops, such as rubber, cocoa, coffee, and palm oil.

Despite growth in agricultural production, population and income growth have contributed to Indonesia’s agricultural import increases. The value of agricultural imports grew from over $650 million in 1975 to nearly $7 billion in 2009, an 8% average annual increase (FAO, 2011).

According to Rada and Regmi (2010) the emphasis of Indonesia’s agricultural policy has shifted from self-sufficiency on food (rice) towards an industrial export-oriented development strategy, since the mid-1980s, and trade liberalisation and a sharp currency devaluation after the Asian financial crisis of 1997 have increased the incentive of producers to focus on tropical perennial crops.

Rada and Regmi (2010) also suggest that research investments have benefited Indonesian agricultural development. Agricultural technology growth between 1985 and 2005 varied across subsectors, being greatest in perennial (export) crops (2.20%), followed by livestock (1.70%), and least in annual (food) crops (0.67%). This analysis suggests that policy reforms and currency devaluation created incentives for increased agricultural trade and generated growth in agricultural productivity. Furthermore, Rada et al. (2010) indicate that technology growth was driven more from private and other non-government sources than from public agricultural research investments.

Poor infrastructure remains an obstacle for rural development in Indonesia. There has been substantial progress in narrowing the gap in access to roads, water, and reliable lighting in the country. Despite this progress, considerable disparities remain between urban and rural sectors, and between rich and poor within each sector. Poor infrastructure in terms of rural roads and irrigation systems are binding constraints to rural development and geographical disadvantages can only be alleviated by the provision of adequate infrastructure.

Geographical isolation will contribute to rural inequality, and less connected localities will have less access to sources of income (inputs, knowledge, markets) and will experience lower rates of growth.

Commercial banks, with a few exceptions, have largely been uninterested in providing finance to agriculture, agribusiness or rural SMEs, and trade-related money flows and trade-related financial products remain weak or non-existent.

In the absence of sufficient formal credit, finance may come either from within the sector itself, through advances between businesses, often in the form of inputs or product, or from financial service providers, ranging from moneylenders to MFIs, and to banks. Financial service providers have funding resources, but may not understand sectors well, and are constrained by legal frameworks and collateral issues. An objective of increasing access to finance to the value chains is to leverage the value chain relationships so that financial service providers can benefit from the advantages that value chain players have in extending credit to each other.

Poverty in Indonesia has been falling both in terms of the poverty rate and total numbers of the poor for the last few decades. Official figures show that poverty in Indonesia fell substantially from about 40% in 1976 to 11% in 1996 (ADB, 2009). The 1997-98 crisis pushed the poverty rate back up significantly. However, the return of robust economic growth since 2002, amid political and macroeconomic stability, has seen poverty reduction in Indonesia resume (Rajah and McCulloch, 2012).

In 2011 the official poverty rate stood at 12.5%, having come down from 23.4% in 1999. This means that the total number of the poor in Indonesia fell from 48 million in 2005 to about 30 million in 2011 (BPS, 2011). Despite the rapid urbanisation and the significant structural transformation of the Indonesian economy, the majority of the poor remain rural. They still primarily work in agriculture and derive the majority of their income from agriculture.

Poverty rates have fallen particularly sharply in Eastern Indonesia, Kalimantan and Java. However, the geographic distribution of the poor remains largely unchanged. Java is still home to 56% of the poor, including 67% of the urban poor and 50% of the rural poor in the country (Rajah and McCulloch, 2012).

Eight provinces saw double-digit percentage point reductions in rural poverty rates over the period 1999 to 2005. These were Jambi, East Kalimantan, West Kalimantan, Nusa Tenggara Barat (NTB), Nusa Tenggara Timor (NTT), Maluku and Papua. Of these, only two provinces (NTB and NTT) were able to achieve this without also recording strong growth in the quantity of agricultural production, thus growth in the quantity of agricultural production has been closely associated with reductions in rural poverty across provinces (Rajah and McCulloch 2012).

Rajah and McCulloch (2012) report that 63% of poor Indonesian workers were engaged in the agriculture sector in 2008. The importance of agriculture is even more pronounced amongst poor rural workers, of which 75% were primarily engaged in agriculture. Trading and industry contributed a further 15% of employment for poor rural workers.

Agriculture is therefore an important source of income for the poorest Indonesian households and remains important, although less so, for the near-poor. However agriculture is likely to be even more important as a source of income for poor households in rural areas. However, available data on the sources of income for poor households is less accessible and comprehensive.

Further evidence shows that both agricultural and non-agricultural sources of income are important for rural households in Indonesia, both poor and non-poor. For instance,

agricultural income contributed 43% of rural households' income in 2002, with about 35% coming from self-employment and about 9% coming from wages. By contrast, non-agricultural sources provided about 43% of rural households' income, with 21% coming from self-employment and 22% coming from wages (Rajah and McCulloch, 2012).

Available data also shows that around 50% of farm income for rural households came from food crops in 2002. Estate crops provide about one-third of farm income for rural households. However, food crops appear to be more important for poor rural households compared to non-poor households. The pattern of income sources for rural Indonesian households has been remarkably stable over time. The largest change was by a sharp jump in the income share of estate crops in household income (Rajah and McCulloch, 2012).

For poor agricultural workers, achieving productivity gains while remaining in agriculture has been the principal means of exiting poverty. It has also been shown that moving from rural agriculture to the rural non-farm economy is important. By contrast, rural-urban migration appears to play a relatively small role in explaining exits from poverty amongst poor rural agricultural workers. While the majority of the poor remain in rural agriculture, remaining in rural agriculture has also been the principal means of exiting poverty in Indonesia.

Women's participation in agricultural production in Indonesia is high, particularly in rice production where 75% of farm labour is provided by women (FAO, 2002). Despite women's considerable participation in the agricultural workforce they continue to be largely unrecognised as farmers, fishers, or livestock producers. As a result their work is invisible and they do not have control or power over essential decision making such as resources for production. They have little access to productivity producing inputs such as credit, fertilizer and extension opportunities. They also lack control over their produce (FAO, 2011).

Women have a major responsibility for farm management but little access to training because customarily male heads of households are invited to training sessions (FAO, 2004). Additionally in rural areas women's literacy rates are below those for men and further limit their access to agricultural learning opportunities (BPS, 2012).

The civil code in Indonesia impedes women from entering into contracts on their own behalf, requiring that husbands, by their presence or permission, assist women in formalising contracts. As a result, married women find it difficult to engage in formal financial activities such as accessing micro credit or opening a bank account. Furthermore under Indonesian tax regulation women are not entitled to separate tax numbers, presenting a further obstacle to individual formal agricultural business activities (ADB, 2006).

Female-headed households are particularly vulnerable to fluctuations in household incomes. As a result, women who are the sole income generators are more likely to accept lower rates of income as a trade-off for reliability of their income stream. In Indonesia, more rural female-headed households work than their urban counterparts. NTT has the highest rate of working rural female heads of households, which could identify them as candidates for targeted commodity selection (such as home gardens with fruits and vegetables, or livestock that does not require them to be far from the household, i.e. chickens), allowing them to stay close to home to accommodate their domestic work burdens.

5.3 Nusa Tenggara Timur

NTT has enjoyed substantial growth along with significant improvement in indicators of social development and poverty reduction over the last decade, although illiteracy and the incidence of poverty remain high, particularly in rural areas. Over the period 2004–2010, poverty rates fell from 27.86 to 20.48%. Furthermore, when the number of near poor is also taken into account, the number of people living under vulnerability increases considerably. There is also a relatively high variation in poverty between people living in urban and rural areas in NTT, with rural areas being substantially poorer. Almost half of households (575,943) in the province are poor.

NTT has a relatively small economy compared to other provinces in Indonesia and it is largely an agricultural province where large proportions of the population depend on agriculture for a living. Of the 2,061,229 people reported to be working in the province in 2010, 65% work in agriculture. Between 2000 and 2008, the share of agriculture in the provincial economy declined sharply, leading the trend for nearly all other sectors, shifting mainly to services, which increased by 7%. In NTT this likely reflects migration out of agriculture due to productivity at or below subsistence, and into services.

The average (per capita) income in the province has risen dramatically in recent years, from Rp 3,658,383 in 2006, to Rp 5,515,943 in 2010 (an increase of 50.8%). However, this is still considerably lower than the national average (per capita) income of Rp 23,975,197.

The food crop sub-sector of the agricultural sector is the largest contributor (21%) to RGDP in NTT, followed by livestock (10.6%), fisheries (4.3%), and estate crops (4.3%). Maize is considered by the Provincial Government the most important food crop, followed by rice, mungbeans and peanuts. Despite their high production levels, cassava and sweet potato remain out of the government's priority commodity list – both are regarded as an alternative buffer for local food stuff needs. Moreover, there is no established market for them due to the absence of food processing industries in NTT (SADI, 2010).

Most trade that takes place in NTT involves agricultural products, which are predominantly traded in small regional markets and onto larger markets in the main centres.

The main agricultural products exported to other regions include cashew nuts, coffee, candlenut, seaweed, tamarind and cattle, most of which have relatively low added value, and are destined for Surabaya and to a lesser extent to South Sulawesi and Bali (ADB, 2009). Exports from NTT to other countries totalled only US$17.4 million in 2005 (Barlow and Gondowarsito, 2007). Most products (agricultural, natural resources – especially manganese) from NTT are exported to Australia and other Asian countries. NTT has also been a traditional exporter of seaweed and fish to China and Japan, although in 2008 the export volume for both these commodities dropped significantly (SADI 2010).

There are a number of important constraints to agricultural and rural development in NTT province. At the social and cultural level there is a focus on subsistence farming, limited trust and implementation of the rule of law (theft of crops), and high levels of illiteracy (Cervantes-Godoy and Dewbre 2010). There are also important gender inequalities due to traditional beliefs, a low status for agriculture and an increasing interest in other more profitable sectors.

Farmers are still regarded as having limited (modern) agricultural knowledge partly resulting from lack of access to formal education and vocational training for farmers, and a

limited number of extension workers operating in the province. In 2010, NTT had a total of 1,392 agricultural extension workers, most of which (1,096) were men. Furthermore, farmers lack incentives (and support) to invest in practical technologies, which can improve quality and quantity of production.

Productivity levels for most commodities are still below the national average due to pests, crop age, poor soil fertility, and climatic problems. Productivity is further impacted by poor irrigation infrastructure; even when infrastructure does exist, it is mostly poorly maintained.

Physical infrastructure, such as roads, ports, and rural utilities (i.e. electricity, sanitation and safe water) is also limited, complicating access to retail markets where prices tend to be better.

In terms of marketing, there are weak links between different value chain actors, farmers have limited access to market information, there is a limited infrastructure to store, process, handle and transport products, and there is generally limited product certification. A reported lack of processing industries and large traders also limit market opportunities for small farmers.

Access to credit for farmers in NTT is limited due to the perceived high risk and lack of financial instruments to help farmer's access money. Only 1.3% of credit from the government and 1.4% of credit from private banks goes to the agricultural sector. There are also problems with land rights and titling, which creates obstacles for access to credit and undermines and discourages investment.

5.4 West Nusa Tenggara

NTB has enjoyed substantial growth along with significant improvement in indicators of social development and poverty reduction over the last decade. In recent years, equity in access to education has improved, although completion rates are still low and gender disparities in access to education and completion persist. Literacy rates have improved, but at 81.05% are still lower than national rates.

While poverty rates in NTB have declined from 28.1% of the population in 2000 to 21.6% in 2010, the incidence of poverty remains high, particularly in rural areas. When the number of near poor is taken into account, the number of people living under vulnerability increases considerably to almost 60%.

The economy of NTB is dominated by the mining and quarrying sector, which contributes 36.3% of GDP. Second to this is the agricultural sector with a contribution of 19.9% of GDP. Industry accounts for only 5% of GDP. The growth of the economy of NTB province in 2010 was estimated at 6.3% (SADI, 2011).

Agriculture is clearly important to the economy of NTB. It is a major production sector, the largest employer, and the sector that the poor rely on most for subsistence. Over 47% of the population over the age of 15 works in agriculture, thus making it the largest employment sector in the province.

The NTB government's strategy to develop agriculture is to support the cultivation of rice as the principal commodity, and focus on three other commodities throughout the province, namely cattle, maize and seaweed (SADI 2010). However, productivity levels for most commodities in the province are still below the national average.

Of the 1,106,599 ha of potential agricultural area in NTB, only around half (497,893 ha) is used for agricultural purposes (SADI, 2011), suggesting an opportunity for expansion of farming activities. The average size of plots is 0.52 ha.

Most trade that takes place in NTB involves agricultural products, which are predominantly traded in small regional markets and onto larger markets in the main centres.

The main agricultural commodities exported by NTB are maize and cashews, according to SADI (2011). While maize is mainly marketed to Bali and East Java, some is also exported to Malaysia. In 2007, 3,000 tons of maize was exported to Malaysia from NTB. Prices fluctuate between 1,700 and 2,800/kg dry grain. SADI (2011) also reports that cashews are exported to India and Vietnam (for further processing), and to China (without information on volumes and/or values).

As in other provinces in Indonesia, the irrigation infrastructure in NTB is poor and has been poorly maintained. The physical infrastructure, such as roads, ports, and rural utilities (i.e. electricity, sanitation and safe water) is also limited, complicating access to retail markets where prices tend to be better. For instance, only 45.6% or roads are considered to be in good condition.

The processing industry needed to support the agricultural sector has been showing good performance, although agro-industries – important in an economy dominated by agricultural employment – are still a very small component of the agricultural sector.

There are a reported 208 branches of commercial banks and 112 branches of the rural bank scattered around NTB province. There are also 3,551 reported cooperatives operating in the province as well as 17 micro finance institutions. It is estimated that among these financial institutions they have provided credit for up to Rp 9.5 billion. However, it is unclear as to how much of this credit has been allocated to the agricultural sector and how.

5.5 East Java

East Java has made important improvements in social and economic development in recent years, however it still lags behind in a number of key social and economic indicators. East Java ranks relatively low in most education attainment indicators compared to other provinces in Java and the national average. In 2008 the adult literacy rate of men and women in East Java was 92% and 83%, respectively, both lower than the national level of 95% and 89%.

Although East Java has almost universal access to primary education, access to secondary education is still low and a challenge for many districts. In 2009, the net enrolment rate in East Java was 95% for primary level, 70% for junior secondary, and 48% for senior secondary level.

East Java has the largest number of people living in poverty in Indonesia (BPS, 201). In 2011, the poverty rate was 13.9%, ranking among the top ten poorest provinces in Indonesia, above the national poverty rate of 12.4% (BPS, 2012). In absolute terms, this figure represents about 5.2 million people in East Java who live below the poverty line, higher than any other province in Indonesia. Nevertheless, the poverty rate in East Java declined from 23% in 2000 to 17% in 2009 to the current 14% in 2011.

Poverty in East Java is a largely rural phenomenon. During the last decade, the poverty rate in rural areas has been consistently higher than in urban areas and the ratio of rural

to urban poor was 1.7 in 2009. When the number of vulnerable people is considered, the near poor—defined here as the number of people under the official poverty line multiplied by a factor of 1.5—cause the rates of poverty in East Java to increase considerably to more than 50%.

East Java is the second largest contributor to Indonesia's economy. The largest contributor to the RGDP in East Java at current prices in 2010 were the trade, hotel and restaurant sector with 29.5%, followed by the manufacturing industry sector with 27.5%, and the agricultural sector with 15.8%. Economic growth in East Java in the last three years has been of 5.9% (2008), 5% (2009), and 6.7% (2010) (BPS, 2012).

There has been very little change to the economic structure of the province in the last decade and growth in agriculture and industry has been slow. Economic growth suffered a major set-back due to the Asian financial crisis in 1997. Despite this, the average annual income per capita of Rp 8.2 million (in 2008) has remained the second highest in Java and among the top ten in the country (World Bank, 2011).

Agriculture takes up about 74% of the land in East Java and there is limited opportunity to expand beyond this (World Bank, 2011). There is also a low land-labour ratio with too many farmers working the limited available land, resulting in a large number of smallholdings, with an average 0.4 ha per household with slight variations between districts (World Bank, 2011). Such relatively small plots are thus mainly focused on subsistence farming, with limited surplus produce for sale. Ninety percent of farmers who sell their products often face low prices and high production costs.

A recent report by the World Bank (2011) suggests that improvement in land to farmer ratio can only happen if the numbers of farmers are reduced by helping them move out to other non-farming employment. Interventions to achieve this may want to focus on facilitating diversification into higher value-added agriculture products such as horticulture, livestock breeding and organic farming; improving the skills through extension services and non-formal trainings; and providing greater access to credit (World Bank, 2011).

The majority of agriculture employment in East Java consists of unskilled labour. In 2009, 94% of labour in the agricultural sector was unskilled (World Bank, 2011).

East Java has a total of 907,374 ha of irrigation, divided between small-scale irrigation within the district, inter-district irrigation and inter-province irrigation.

The province suffers from poor transport infrastructure. Overall, district roads remain in a worse condition than provincial or national roads, affecting farmers and many smaller rural businesses. Poor roads are a significant obstacle to the integration of producers to large wholesale and retail markets, where they can fetch better prices than at local village markets or from collectors. The state of the infrastructure and transport links influences both the cost and length of time needed for transportation, thus directly affecting profitability and competitiveness.

East Java's ratio of credit to GDP is relatively low compared to other large provinces in Indonesia. At 19% of its GDP, credit in East Java is lower than the national average of 31%. Agriculture is still deemed as a risky investment sector by banks (94.7% of farmers never obtain credit). The share of credit allocated to the agriculture sector remains low at only 4% for the last three years. The low proportion of credit allocated to the agriculture sector is similar with trends in other provinces. The default risk in agriculture is perceived as high.

5.6 Conclusion

Indonesia is still a youthful country, with more than 70% of its population under the age of 40. It is also a country growing at a relatively low rate of 1.49% per year, with average annual growth rates in rural areas only 0.77% over the last decade (UNDP, 2012). Despite important improvements in education, a large proportion of Indonesia's population is unskilled. Addressing this problem will require sustained efforts from the public and private sector in education and training. Furthermore, while gender gaps in primary and secondary education are beginning to close, women tend to receive less further education and vocational skills training, which prevents them from pursuing their own livelihoods. Women are also less likely than men to be reached by extension services to be able to increase the resilience of agricultural livelihoods.

Low levels of productivity are causing migration out of agriculture due to productivity at or below subsistence and into services or government employment. In some cases, this is highly gender-biased. However, overall rural to urban migration appears to play a relatively small role in explaining exits from poverty amongst poor rural agricultural workers. While the majority of the poor remain in rural agriculture, remaining in rural agriculture has also been the principal means of exiting poverty in Indonesia (Rajah and McCulloch, 2012).

Agriculture is increasingly consuming most of the land in some parts of the country, most notably in East Java, and soon there will be limited opportunity to expand beyond this. As more and more farmers work the limited available land, this will result in a larger number of smallholdings. Such relatively small plots, which are mainly focused on subsistence farming, have limited surplus produce for sale. These types of farmers who sell their products often face low prices and high production costs. Increasing production will depend more on increasing productivity and making better use of existing resources, which will only come about with better agricultural techniques, acquired through training and education.

Typically, non-farm activities are a way out of poverty. However, there seems to be very limited available and reliable information in this area, which therefore warrants further study. It is important to note, nonetheless, that adequate infrastructure is key for the development of non-farm activities, mainly rural SMEs. Reliable rural roads help rural populations access key services, including education and health, and improve opportunities for non-farm income generating activities. However, the infrastructure in Indonesia—including the three provinces under study—is limited and poor, especially in rural areas. The poor state of much infrastructure limits the potential of individuals to access social services, such as schools and hospitals, and develop business opportunities. This also includes access to clean water, electricity and irrigation systems. Improving the populations' access to social services and better infrastructure will be key in poverty alleviation efforts.

The transportation infrastructure in Indonesia is also generally limited. The preferred method of transporting goods within and between islands in the selected provinces is trucks and ferries. When public transport is weak and receives relatively little investment, many families and individuals are tempted to buy (cheap) cars or motos. The rise in the number of private vehicles in Indonesia has been accompanied by a significant expansion in (poor quality) road networks, while rail networks in contrast have seen decreases. However, the quality of roads remains generally poor, particularly in rural areas, affecting

the poorer families more. At the provincial level, this presents a stark picture. Few quality roads and the resultant high numbers of impassable roads, makes access to farm lands and markets difficult.

While overall poverty levels in Indonesia, and the three provinces under study, have decreased, the geographic distribution of the poor remains largely unchanged. The majority remain in rural areas, where around half the country's population lives, still primarily working in agriculture and deriving the majority of their income from agriculture, despite the rapid urbanisation and significant structural transformation of the Indonesian economy.

Addressing poverty through smallholder commercialization is a big challenge as there are a number of determinants in commercializing smallholder agriculture. Consideration has to be given to both the input and output sides of production, together with the decision-making behaviour of farm households in production and marketing simultaneously. Production decisions of commercialized farmers are based on market signals and comparative advantages, whereas those of subsistence farmers are based on production feasibility and subsistence requirements, and selling only whatever surplus product is left after household consumption requirements are met (Jaleta, Gebremedhin et al. 2009).

Perceived financial and labour risks compel subsistence farmers to stick to the self-sufficiency objectives both in their production and consumption decisions. Furthermore, market and price fluctuations make market-oriented resource-allocation decisions of semi-subsistence farmers difficult, as cash income is increasingly important to guarantee household food security. Policy measures and focused interventions can play an important role in mitigating these risks. This can include improving the links between farmers and input sellers and buyers, to facilitating farmers' access to information and/or credit in kind.

Whether smallholder commercialization creates more employment opportunities depends on the nature of the commodities grown, the technologies used in the production process, and whether additional agricultural processing is involved. This review has found however, that for most food and estate crops the processing capability is limited.

Increasing market participation has a positive impact on value chain actors such as input suppliers, output traders, transporters, processors, financiers and others. These actors may change the forms of products via processing, storing or transporting from one point to another based on market demands.

The drive towards a higher level of commercialisation consistent with broad-based growth and increasing farmer incomes depends on several factors, including effective institutions; improved infrastructure; knowledge management; adequate incentives; stakeholder's initiative; and finally, a conducive environment.

Institutions, both formal and informal, have an important impact on the economic performance of different sectors and in the facilitation or hindrance of a smallholder commercialization process. Values, norms, sanctions, taboos, cultures and traditions also strongly influence smallholder production and marketing decisions, including those related to input use. Socio-cultural and religious factors determine consumption preferences of households, which can be a motivating or demotivating factor for household commercialization (Jaleta, Gebremedhin et al. 2009).

Factors facilitating commercialization are mechanisms which will reduce transaction costs arising from activities such as exchange of goods and financial assets; enforcement of contracts; risk reduction; formation of organizations; and the acquisition and dissemination of information. Other important factors in increasing farm family incomes and agricultural commercialization include markets; contracts; farmer organizations and trade associations; standards; the formalisation of business transactions; monitoring and evaluation; research and extension; and credit and insurance.

Improved infrastructure facilitates the movement of commodities, people and information, enhancing both the process of finding new commercial opportunities and the gains from price difference over space and over time. Lower transportation and marketing costs contribute to increased demand resulting in larger volumes of production and smaller margins between farmer and consumer prices. The building of new infrastructure and the rehabilitation and proper maintenance of existing infrastructure are both essential (Purcell, Gent et al. 2008).

Finally, for commercialization to thrive there has to be cooperation among different stakeholders (in order to gain from improved access to technology, credit and markets) and the will to innovate (in order to stay abreast of competition from domestic and international markets). However, cooperation and innovation will not occur unless there are appropriate incentives and policies in place (Purcell, Gent et al. 2008).

As this review highlights, there are important data gaps among the three selected provinces, which is further accentuated at the district level. Whilst this may impede a clear assessment of the preferred commodities to select for this study, it provides clear guidance as to where further research needs to be done and areas where the upcoming value chain studies can contribute to data collection. This includes information on prices and the creation of value along the value chain; existing wholesale and retail markets at the district and provincial level; processors and processing facilities; the state of irrigation at the district level; the role of collectors and traders in marketing; and the different sources of income of poorer households in different districts and the proportion of each source of income to the total income.

6 Commodity Prioritisation

6.1 Commodity Literature Reviews

6.1.1 Introduction

As one of the very first activities of the project team, literature reviews were commissioned for each of the 16 commodities that were short listed by the project reference group in Canberra, December 2011.

The purpose of the literature reviews was to provide objective background data and contextual information on the commodity in both a macro and micro environment. This information was to inform the scoring of the commodities against the selection criteria.

The full literature reviews for all 16 commodities can be found in Analysis of Agribusiness opportunities in Eastern Indonesia: A literature review of key commodities. (*Collins Higgins Consulting Group, July 2012)*

6.2 Selection criteria and weighting

6.2.1 Selection criteria

The desired outcomes of the AIPD-Rural project, which the EI-ADO project will inform, are poverty alleviation and achieving pro poor outcomes. The criteria selected to rank commodities must therefore reflect this entry point.

On the basis of the starting criteria suggested in the M4P Toolbook and the specific focus of this research, the following criteria were developed and consulted prior to, and during, the Lombok workshop:

Poverty alleviation and sustainability of the economic activity

1. Is there potential to reach large numbers of poor households in production and post-production?
2. What is the potential to increase income for producers?
3. Does the chain/commodity fit with the focus of Government programs and priorities and other donors?
4. How project-crowded is the sector? To what extent are sector needs addressed by the current donors?
5. What is the ecological feasibility?
6. Is it environmentally sustainable?
7. Is it economically sustainable?[2]
8. External risk

Structure of the value chain

1. Is there potential for post-harvest productivity/ value-added?
2. What is the potential for improving market access?
3. Is there sufficient infrastructure availability?

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[2] *It was determined during the Reference Group meeting in Sanur June 2012 that it would be more appropriate to incorporate the sub criteria "Is it economically sustainable?" into the 2nd sub criteria "what is the potential to sustainably increase incomes for producers"*

4. What is the scalability and transferability potential?

6.2.2 Weightings

Once the criteria were agreed upon, relative weightings of importance were developed. Different criteria are allocated different levels of importance (or weighting) in the decision making process, reflecting the criteria's greater influence in selecting the commodity most suited to achieving the project goals.

Underpinning the weighting process are AIPD-Rural's goals of increasing income of more than one million poor male and female producers in Eastern Indonesia by 30%. In particular, AIPD-Rural supports efforts to increase value chain competitiveness through better farm practices, better access to input and output markets and an enhanced business enabling environment for agribusiness.

To best reflect the overall aims of AIPD Rural, "Poverty and Sustainability" criteria were weighted more heavily than the "Structure of Chain" criteria. The sum of the sub-criteria under "Poverty and Sustainability" is worth 60% of the total weighting and the "Structure of Chain" is weighted 40%.

Table 3 below shows the criteria and their relative weighting, along with a description or rationale of what the criteria aims to achieve.

Table 3. Criteria and weightings to rank the commodities

Criteria	%	Rationale
Poverty alleviation and sustainability of the economic activity	**60%**	
1. Is there potential to reach large numbers of poor households in production and post-production?	30%	AIPD Rural goal to reach one million poor male and female producers in EJ, NTT and NTB over 10 years
2. What is the potential to sustainably increase income for producers?	30%	AIPD Rural goal is to increase incomes of poor male and female producers by 30% over 10 years
3. Does the chain/commodity fit with the focus of Government programs and priorities?	10%	AIPD Rural goal is to collaborate closely with Government of Indonesia's priorities and programs
4. How project-crowded is the sector? To what extent are sector needs addressed by current donors?	5%	Aims not to compete or duplicate, but to complement existing initiatives
5. What is the agro-ecological feasibility?	10%	The commodity should be well suited to the biophysical constraints of East Java, NTT and NTB
6. Is it environmentally sustainable?	10%	To assure project sustainability
7. External risks.	5%	To assure project sustainability

Criteria and weightings to rank the commodities (continued)

Criteria	%	Rationale
Structure of the value chain	40%	
1. Is there potential for post-harvest productivity/ value-added?	30%	AIPD Rural supports better access to input and output markets
2. What is the potential for improving market access?	30%	AIPD Rural supports better access to input and output markets
3. What is the scalability and transferability potential?	25%	To ensure lessons learned from the study be up-scaled to the national level and the lessons learned transferable to other sectors
4. Is there sufficient infrastructure availability?	15%	To assure project feasibility

6.3 Commodity technical briefs

Commodity technical briefs were subsequently developed as a summary of the key commodity information, and were specifically targeted at providing detail against each of the selection criteria to inform scoring. These were the key documents to succinctly engage with the stakeholders and the project reference group.

6.3.1 Banana

Priority statement

The banana sector is a **MEDIUM** priority for pro poor development. Whilst work in the banana sector has the capacity to reach a large number of poor households, there are a number of tempering factors to consider. There is limited policy focus by government at national or provincial level on supporting the sector, and disease management is a major limiting factor to industry expansion.

In 2010, Indonesia ranked 6th in the world in both production quantity and value of bananas. Bananas represent 35% of tropical fruit production by volume in Indonesia. East Java accounts for 15.3% of the total area harvested to bananas and 16% of production. NTT and NTB are small contributors, with only 3% and 1% of Indonesia's production respectively. Table 4 outlines some basic sector statistics for the provinces of interest in this project.

Table 4. Banana production statistics for selected provinces in Indonesia, 2010

Basic Statistics	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Area harvested (Ha) *	15,510 (15.3%)	1,448 (1.4%)	2,605 (2.6%)	101,276
Volume of Production (tonnes)*	921,964	62,799	187,911	5,755,073
Yield (t/ha) *	59.4	43.4	72.1	56.8
Value of Production IDR (trillion) **	8.4	0.57	1.7	52.5
People Employed***	Philippine data suggests that: In an efficient banana production process, an average of two (2) people are employed and directly involved in the planting, growing and harvesting of the fruit for each Ha grown. In the overall exporting process -- which includes people involved in the production of packing materials, transportation, stevedoring, and distribution for every hectare of bananas, a total of about eight (8) people are engaged. The Indonesian banana sector would currently not be considered efficient (production is very non-intensive), or at an export level. Therefore it is safe to assume these figures are conservative.			

*Source: * Badan Pusat Statistik 2010*
*** Using $0.97 USD/kg from http://www.mongabay.com/images/commodities/charts/banana.html*
**** http://www.pbgea.org/files/bananaind.html*

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

- Yes. This could be as high as 1.5 – 2 million households.
- Banana production in Indonesia is mostly undertaken on a non-intensive basis by smallholders. These farmers usually have other agriculture enterprises as a source of income and bananas supplement this.

What is the potential to increase income for producers?

- Bananas are a cash crop that has the ability to provide a continual income throughout the year.
- Programs that focus on improving farming practices and controlling and managing diseases have the ability to increase income through improved quality and production.
- Bananas represent a sector that has the potential to increase income for female head of households.

Does the chain/commodity fit with the focus Government programs and priorities?

- Horticulture production has been a priority of the national government however available literature is contradictory as to the importance of bananas.
- Bananas have not been identified as either a major or minor priority species for research work and investment at the Centre for Tropical Fruit Studies (CENTROFS) in Bogor.

- The GoI Director General, Horticulture's strategy and policy for horticultural sector development last decade does list banana as a key commodity to improve production.

How project-crowded is the sector? (To what extent are sector needs addressed by the current donors?)

- There appears to be very little donor activity in the banana sector.
- A number of research projects have engaged with the sector, including some by ACIAR, largely focussed on seeking solutions to managing the disease problems of the industry.

What is the agro-ecological feasibility?

- Moderate to high. Banana production is mostly undertaken on a non-intensive basis. Unless the industry can overcome its disease problems there is little likelihood that corporate investment will be achieved.
- The production of banana is often blurred with NTFP due to the fact that many bananas are sourced (harvested) from forest communities.

Sustainability (economic and environmental)

- The large scale commercial banana industry in general does not have a good environmental track record (high pesticide use, contamination of water sources, results of monoculture, health of workers) however there seems to be little focus on this in Indonesia.
- Smaller scale banana production is often within forest margins and is reasonably benign in terms of detrimental environmental impacts.
- If Indonesia seeks to participate in the banana export trade, it is highly likely there will be a requirement to sign up to Fair Trade or organic production to access markets.
- As a raw, fresh product banana is an important staple, and holds importance in traditional cooking.

External risk

- The lack of market infrastructure and access to finance for farmers are key hindrances to industry development.
- The risk of disease and fungal problems is still high in Indonesia and correct management for production and post-harvest needs to be implemented to ensure a disease free sector.

Structure of the chain

Is there potential for post-harvest productivity / value-added?

- Yes. There is little literature available to determine the extent of any banana value adding that may be occurring in Indonesia. Two banana packing houses were developed in Deli Serdang through the USAID/ARMARTA grants program in the mid-2000s.
- Beyond the farm gate, improved cold chain during transport will help industry development.

What is the potential for improving market access?

- There are three varieties, Cavandish, Argoon and Golden Banana, offering the best prospect for commercial opportunities in Indonesia. These varieties also appear to have the best disease tolerance.
- Currently most farmers are unorganised and lack the coordination to market their bananas appropriately. However demand domestically and internationally is growing. The current market demand cannot be satisfied in Bali which represents a potentially large and growing market for Eastern Indonesian suppliers.
- Unless Indonesia can sufficiently address its banana disease problems, it may find export markets are limited.

What is the scalability and transferability potential?

- High. Banana represents a significant amount of Indonesia's fruit production and is practiced in many Indonesian provinces.
- Any technology or practice transfer will be hindered if disease and biosecurity management is not widely transferred and adopted.

Is there sufficient infrastructure availability?

- Indonesia has poor infrastructure and a scattered fruit industry resulting in high internal distribution costs.
- There is a lack of regional wholesale markets and cool store/packing facilities for local fresh produce.
- In regional Indonesia there is a need for investment in sea ports to reduce cost of trans-shipment and post-harvest facilities.

6.3.2 Beef Cattle

Priority statement

There is no doubt the beef sector is a **VERY HIGH** priority for pro-poor agribusiness development. Beef industry development has been given the highest policy focus at national and sub-national levels. There are numerous on-farm and off-farm opportunities to significantly increase efficiency, competitiveness and income for over two million poor beef households, and thousands of people in the beef market chain.

East Java, East Nusa Tenggara and West Nusa Tenggara contribute to more than 40% of national herd inventory. The beef sector in Eastern Indonesia produces over 120,000 tons of beef, mainly from smallholders, which is 29% of total Indonesian production. Very large numbers of specialised smallholder cattle producers in EJ, many of them landless women, could benefit from better integration with more efficient beef markets (see Table 5). The number of producers in NTT and NTB is smaller and there are fewer off-farm employment opportunities, however cattle play a more significant role in household income of poor families. Improved on-farm productivity and reduced mortalities, along with improved market access and competitiveness and market development in these two provinces have the potential to directly address rural poverty.

Table 5. Cattle and beef production indicators in selected provinces in Indonesia, 2011

Basic Statistic	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Cattle (head) % of national herd Rank in country*	4,727,298 31.9% 1	685,610 4.6% 6	779,633 5.3% 4	14,824,373
Slaughter number (head)	528,050	54,476	42,279	2,239,149
Beef (tonnes)**	110,900	7,300	6,500	435,200
Cattle producers***	1,978,768	164,619	33,917	4,167,894

*Source: * BPS- PSPK 2011;*
***2010. http://aplikasi.deptan.go.id/bdsp/hasil_kom.asp;*
**** National Animal livestock Census 2011 (refers to livestock producers, a large proportion are cattle producers).*

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

- Yes, most definitely. Beef sector development has the potential to benefit over 2.2 million smallholder households raising cattle in EJ, NTB and NTB. This is more than half (52%) of the total cattle raising households in Indonesia.
- Of the 1.9 million cattle raising households in EJ (47% of total), many are landless poor, especially women with limited income options.
- In NTB and NTT there is potential to significantly reduce very high rates of poverty in almost 300,000 households.
- The beef sector also supports large numbers of cattle traders, and many thousands of small-scale and labour-intensive enterprises involved in forage supply, slaughter, processing (bakso/meatballs) and retail sectors.

What is the potential to increase income for producers?

- Very high. Cattle will often contribute to at least 50% of household income in Eastern Indonesia, with reported values ranging from 13% (total household income) to 61 - 84% (farm cash income). Income from cattle is particularly important for thousands of landless families in East Java.
- Net income from smallholder cow-calf and beef fattening operations has been shown to range from IDR 1-3 million per head per year (excluding opportunity cost of labour, land and capital). However current productivity is very poor and adoption of simple proven management packages can increase farm cash flow by 60 - 120%.
- Breed choice, superior bulls, earlier weaning, controlled natural mating, strategic supplementation, use of tree and forage legumes, disease management and penning facilities implemented in an Integrated Village Management System can increase cow weaning rates (60% up to 83%), reduce calf mortality (10 - 15% to 8%), concentrate calving and increase calf growth rates (0.3 kg/d to 0.4kg/d), significantly increasing the number and weight of cattle for sale.
- Beef demand and prices in Indonesia have remained relatively high, however inefficiencies, costs and margins occur in marketing, transport, fees/taxes, and the margins of traders. Institutional and off-farm development (groups, information, credit,

input supply) have the potential to increase competitiveness, incomes and transfer more value towards small-holder producers.

What is the agro-ecological feasibility?

- High. In EJ extremely high human, livestock and land use densities means that higher incomes is driven by improved animal productivity and market efficiency and development. Here the feasibility of larger-scale or more specialised feeding operations is determined by the availability of and access to crop residues, agro by-products, cut and carry forages and tree legumes used for livestock feed.
- In NTB and NTT there is also scope for increasing cattle populations and household scale of production. Cow-calf production in (seasonal) grazing systems is an area of comparative advantage for some areas of NTT and NTB, but there is a risk that expansion may place further grazing pressure on already degraded grasslands.
- There is a low risk that institutional barriers will hinder farmer access to credit and ability to form functional beef marketing groups.
- There is a low to moderate risk that little progress will be made on efficient policy measures to promote public private partnerships and an efficient business enabling environment necessary to promote private sector investment and overcome infrastructure, institutional, market and supply chain inefficiencies.
- The risk of major disease outbreaks (e.g. FME, brucellosis) that could disrupt production and inter-regional trade is currently low but could be enhanced by policy decisions that lead to increasing unofficial and official imports from less bio-secure markets.

Sustainability (economic and environmental)

Economic sustainability is very high. There are some environmental sustainability issues.

- Demand for beef is increasing at 4% per annum due to sustained population growth, income growth, ongoing urbanisation and changing consumer trends.
- Moslem preferences mean that pork is not a substitute product for beef and that demand is in high demand for religious festivals.
- Beef supply has increased only slowly in recent years due to productivity and resource constraints and trade policy (import quotas on live cattle and beef).
- If high and increasing beef prices can be relayed back to cattle producers, and if producers respond, then sustained industry growth could be expected.
- While environmental issues are not yet a major concern of policy-makers, industry expansion may exacerbate negative environmental effects (resource depletion, over-grazing, and effluent) that occur along with positive effects (manure/organic fertiliser). Animal welfare and food safety issues are becoming prominent in some market segments.

Does the chain/commodity fit with the focus of Government programs and priorities?

Yes, beef is a very high priority at national and provincial Government levels. Specifically:

- Beef is one of five agricultural sectors, along with maize, rice, sugar and soybean identified by the National Government as the top priorities for development and funding support necessary to achieve 90% self-sufficiency by 2014.

- East Java has implemented the Madura “Diamond Cattle” program to develop the artificial insemination system and increase calf numbers to 5 million calves over a 5 year period.
- The government of NTB has launched the BSS “Bumi Sejuta Sapi – land of one million cattle” program, which aims to make the province a key source of local breeds and to increase the beef cattle herd from 685,000 to 1 million head by 2014.
- In NTT, provincial government has launched the “anggur merah” program to speed up economic growth and reduce poverty in which the beef cattle sector development is a strategic focus.
- In 2013 DGLAHS will spend approximately IDR 1.5 trillion to implement beef development policies, strategies and targets at national and provincial levels is areas such as supply chain management, reducing slaughter of productive females and targeting improved animal husbandry and breeding strategies.

How project-crowded is the sector? (To what extent are sector needs addressed by current donors?)

- There is currently limited non-GoI investment in beef research and development.
- Australian agencies (ACIAR, DFAT, MLA, DAFF) have a long-standing and ongoing beef research and industry development programs. While the level and scale of investment is modest, these activities provide a strong base from which to scale up and apply to development activities.
- IFAD, The World Bank, JICA and DFID have in the past provided intermittent support to the cattle and beef sector.

External risk

- There are a number of low to moderate risks that could jeopardise the likelihood of achieving significant income benefits to the poor.
- Technical innovations are proven and relatively simple, however will require significant institutional resources to support scaling-out and widespread adoption across huge numbers of farmers.
- The risk of reduced support for the domestic industry at national and provincial levels is probably low. However there is a moderate risk that changing trade policy, policy distortions and policy inconsistencies occurring.

Structure of the chain

What is the potential for improving market access?

- There is significant potential for domestic beef to compete with imported beef markets in particular segments.
- Industry development and investment is necessary to improve: physical and institutional access to markets; cattle handling facilities; inefficient road, port, market and sea infrastructure; efficiency, professionalism, food safety and animal welfare standards of beef slaughter and processing facilities; and simple innovations in wholesale and retail meat marketing and value adding.
- Improving information about cattle and markets to the farmer, building confidence in dealing with traders and reducing reliance of credit from traders that tie them into reciprocal sales arrangements will increase farmer’s access to and competitiveness in cattle markets.

What is the scalability and transferability potential?

- Technical innovations leading to income gains are highly scalable and transferable. Recent research has demonstrated more profitable management practices e.g. IVMSs are readily adopted by farmers, but need strong technical and policy support.
- While industry activity is relatively concentrated in geographical pockets of EJ, NTB and NTT, cattle, many areas have bio-physical and economic conditions for expansion. The constraints to development outlined for many sectors of the industry are common across the region, so technologies, interventions, infrastructure and systems generated by the project may facilitate this expansion.
- Successful industry development will need to address availability and cost of credit, livestock feeds, suitable quality breeding stock, technical support services, transport and market access. Effective public-private sector partnerships and investment and harmonised policy at all levels of government are required.

Is there potential for post-harvest productivity / value-added?

- Yes, Significant potential. In addition to the value generated from productivity gains, input-output conversion and heavier turn-off and carcass weight, the large number and type of cattle products provide opportunities for value-adding. For example targeted promotion and marketing of higher value primal cuts and improved utilisation and value adding of sub-primals.
- Inappropriate pre-slaughter management and slaughter techniques result in dark cutting beef, reducing shelf life and overall product value, leading to meat being discounted by as much as 30% in the wet market. Improved handling and slaughter techniques through training and infrastructure investment will not only improve animal welfare, but will result in increased financial returns through improved meat colour quality and shelf life.
- Innovative marketing in traditional wet market and modern retail can capture latent demand for beef with particular quality, brand, food safety or animal welfare characteristics/standards.
- Other products include offal, hides, pharmaceutical products, and processed beef that generate value and employment accessible to small-scale actors.

Is there sufficient infrastructure availability?

- No. Marketing and inter-regional cattle trade is constrained by the under-development of livestock selling and market infrastructure, cattle handling and purpose-built transport facilities (truck and sea), cold storage/transport facilities, and slaughter facilities.
- In-depth research is required to understand infrastructure constraints and the costs and benefits of addressing them at critical control points along the beef supply chain, including livestock handling on-farm, road and sea transport and at ports, markets and slaughterhouses. Public-private investment in integrated supply chain infrastructure is urgently needed.

6.3.3 Cashew

Priority statement

The cashew sector has a **MEDIUM - LOW** potential for pro poor development. Evidence suggests that it is doubtful that even at industry best practice production levels of 2 t/ha, returns to smallholders will be sufficient to lift families from below the poverty line.

Indonesia has a comparative advantage over other cashew producing countries as it is the only country to have raw cashew nut available from Sept – Nov. This however is in direct competition with establishing a significant domestic shelling industry. The support of village shelling and clusters does have merit to support the development of a domestic cashew market, which in other countries has been the basis on which a significant export industry has grown. Table 6 outlines the production statistics for the study regions.

Table 6. Cashew production statistics for selected provinces in Indonesia

Basic Statistics	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Harvested area (Ha) *	48,475 8.4%	67,540 11.8%	173,834 30.3%	574,358
Volume of Production (tonnes)*	14,657	15,137	39,339	145,082
Yield *	722	441	699	454
Value (IDR billion)	192.6	199.2	517.8	1907.6
People Employed***	An estimated 450,000 smallholder farmers depend on cashew farming for regular income.			

*Source: * BPS- PSPK 2010 (preliminary figures)*
*** $1.40/kg from http://www.alibaba.com/product-free/107352718/Cashew_Nut_Indonesia_Sulawesi.html*
**** Swissconnect 2009*

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

- There is high potential to reach large proportions of farmers in the poorest areas of Eastern Indonesia.
- Cashews are a large crop in Indonesia with approximately 400,000 farmers in the provinces of South East Sulawesi, South Sulawesi, NTT and NTB with farmers dependent on cashews where a lack of other options are available.
- Additionally, village based shelling provides opportunities for additional incomes for families, particularly women.

What is the potential to increase income?

There is low potential for increasing incomes in the cashew sector due to very tight margins in production and processing. Yield improvement could be realised and a 2008 study estimates that:

- A 10 % increase in yield would increase rural earnings by IDR 56.3 billion per year
- A 10% increase in plantings would add IDR 56.3 billion per year to the sector

Possible strategies to improve the viability of the smallholder cashew farmers in eastern Indonesia could include:

- a varietal selection program
- management of pests at flowering eg. there may be a role for a green ant IPM strategy
- intercropping options
- canopy management
- the clarification of widely varying natural levels of soil fertility
- introduction of village based roasters to expel cashew nut shell liquid, and improved nut crackers will improve the outturn of current home based processing.

- Farmers appear to be getting a fair price for nut in shell and kernel compared to world prices. The opportunity to increase farmer income through processing is ongoing, but does not give a farm family a big increase in family income.

What is the agro-ecological feasibility?

- Cashew production in Indonesia is mainly confined to the Eastern parts of the country. These areas are characterized by sparse rainfall and a long dry season, which is considered ideal for high productivity of cashew and eliminates alternative crop options.
- Plantations are established on flat terrain as well as in hilly areas. Since land clearing on hilly slopes is very costly, cashew trees are established with minimum land development.
- Land use surveys (1995) have shown that more than 15 million ha spread out over 9 provinces in the country are suitable for the expansion of the cashew industry. There does not seem to be any limitations on land availability.

Sustainability (economic and environmental)

- Evidence suggests that it is doubtful that even at industry best practice production levels of 2 t/ha, returns to smallholders will be sufficient to lift families from below the poverty line.
- Environmental issues are limited for the cashew sector. The industry in Indonesia was started in Southeast Sulawesi as part of a soil-stabilisation and reforestation program. Most of the world's production of cashew is organic by default as the smallholders are unable to afford chemical inputs.

Does the chain/commodity fit with the focus of Government programs and priorities?

- The cashew industry is a lower priority at a national level but the NTB Government has given it high priority.
- A 2008 report indicates that the South East Sulawesi Government was actively encouraging investment through a one-stop service operated by the Dinas Perkebunan. The law is said to allow for a tax holiday up to five years for investments in cashew and the government is willing to underwrite the capital investment for a period.

How project-crowded is the sector? (to what extent are sector needs addressed by current donors?)

- A Canadian International Development Agency bi-lateral funded private sector development project was delivered in Indonesia from Feb 2008 until Apr 2012. The geographic focus of the project is the Island of Sulawesi.
- Swissconnect have also been involved with donor activities since 2004. These are about due to expire.

External risk

- There are significant risks around the viability of project outputs from lack of high quality planting material/varieties, variable quality in home-level and small-scale processing enterprises, pest and disease constraints, drought effects, fire hazards and economic instability Increased competition in the international market between the main producer countries may have a negative impact on cashew prices in the short to medium term.
- A local government tax is collected in each Kebupaten by the Dinas Pendapatan Daerah (DISPENDA). As it is set locally by each administration it varies from district to district. The tariff is significant, for example IDR 480/kg (USD 0.05/kg) (3.5%) in Bouton (2008), and may become more important if the product needs to cross more than one regency en route to Surabaya for export.

Structure of the chain

What is the potential for improving market access?

- The domestic market access could be improved with better domestic processing but local prices would have to compete with global markets. Indonesian farmers already get a high percentage of the world market price in the export market as a result of lower freight costs to destination markets and the timing of the Indonesian season.
- As Indonesia is the only in-shell supplier harvesting from September to November competition amongst international and export traders is intense. The entire focus of global buyers of raw cashew nut is on Indonesia during that time.
- Current exporters readily agree that they lack quality and timely information about the world market. In order to increase returns at every level of the chain it is important that stakeholders understand who their customer is, what their customer needs and what their product is worth. What is required is market knowledge and know-how. This presents an opportunity for development.

What is the scalability and transferability potential?

- Both the scalability and transferability potential is high in the eastern study areas and very low in others due to the much lower production.

Is there potential for post-harvest productivity / value-added?

- The potential for post-harvest processing and value adding is low.
- The main source of income for growers is the cashew kernel. The majority (>80%) of Indonesia's cashew crop is exported as raw cashew nut. Low production and consequently, the lack of raw material supply are the major causes for domestic processing decline. There is strong competition between raw cashew nut exporters and processors so farm-gate prices are good, but this is not conducive for

development of the domestic processing industry. An increase in this sector would require the local industry to compete with overseas buyers for product to ensure sufficient volume of raw product was available.

- Further opportunities do exist in terms of assimilation of cashew production with processing to service a domestic market. These are centred around small scale and village based shelling and local collection centres that could provide additional income sources for rural families, particularly women.

Is there sufficient infrastructure availability?

- The current industry structure requires little infrastructure as cashews from all the eastern areas are shipped to Surabaya for export of in-shell and in part for shelling. In 2006, 83% of cashew exports were through the port of Surabaya.
- Processing infrastructure is limited as the export market does not require anything but the raw product.
- Cashew is a high value item with a short season requiring trade finance/working capital if it is to develop as a shelling industry. Finance for capital costs of shelling is reportedly expensive and difficult to obtain.

6.3.4 Cassava

Priority statement

Cassava is of **MEDIUM** research priority as it is part of a simple value chain that is developing towards industrial use of the product, offering limited opportunities for value-adding at the producer end.

Cassava production in Indonesia makes up about 30% of the production of Asia and the Pacific. Indonesia is the fourth largest cassava exporter in the world with 8% of the world market share. The total amount of production (23.5 million tonnes) is almost the same as Thailand's, the world largest cassava exporter.

East Java is the biggest producer of cassava and contributes about 13% of the total country output compared to NTB and NTT which contribute less than 1% and 4.7% respectively (see Table 7). At 15.9 t/ha, yields are higher in East Java than in NTT or NTB, however are lower than the national yield of 19.5 t/ha. In terms of value, East Java's production generates US $13.2 million per year, which accounts for 16% of the national value of production.

Table 7. Cassava production statistics for selected provinces in Indonesia, 2011

Basic Statistics	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Area of Production (ha)	197,969	5,273	103,568	1,203,293
Volume of Production (tonnes)	3,154,295	74,912	1,093,885	23,464,322
Yield (t/ha)	15.93	14.21	10.56	19.50
Value of Production (US$)[3]	13,197,933	351,533	6,904,533	80,219,533
People Employed (hh)*	150,000	4,000	78,000	900,000

*Assume 1.32ha of cassava per household

[3] Based on average price for 2009-2011 of Thai domestic root prices = 67USD/ton

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

- There is no clear data on the number of people involved in cassava production and post-production, however for producers, out-grower schemes and geographical consolidation of production can help increase the number of people involved.
- In terms of post-production, processing for food can be further explored and potentially expanded.

What is the potential to increase income?

- New varieties for dry and wet starch content have potential in starch and bio-ethonol markets. Improved cassava varieties such as Manggu Darul Hidayah, can give yields of 100 t/ha, as opposed to 20 t/ha (Agro2, 2011).
- In Lumpang Province, Cassava income forms 43% of the total household income and 57% of the total agricultural income of the surveyed households.
- Income for producers can be increased mainly if they link into the estate crop production and switch from traditional to new varieties.
- Income for producers could be increased through improvement of post-harvest practices, access to optimum varieties for high quality cassava chips for bio-ethanol production, access to inputs and seasonal credit.
- Income for producers of traditional varieties can be marginally improved with further optimization of post-harvest basic processing for food.

What is the agro-ecological feasibility?

- Cassava is grown in all Indonesian provinces, which along with the high figures for national production demonstrate the crop's suitability to the environment.
- East Java has dedicated 197,969 ha to cassava, while NTT and NTB have 103,568 ha and 5,273 ha of cassava respectively.

Sustainability (economic and environmental)

Economic risk is moderate

- Indonesia is the third largest producer of cassava in the world behind Nigeria and Brazil.
- The economic sustainability of the industry is highly dependent on the international fuel markets and prices for raw material.
- On the whole, large producers with increasing processing capacity such as Indonesia are in a good position to ensure positive returns and support a large base of local producers.

Environmental risks are relatively high

- A major environmental risk for cassava is related to nutrient depletion and erosion, as it is often grown on degraded lands, low fertility soils and or sloping lands.
- Cassava is a resilient crop, with high water and nutrient use efficiency and is climate change ready. There are few examples of reductions in areas and productivity due to projected climate change, in fact mostly the opposite, with the possible exception of increases in the threat of cassava pests and diseases in some areas.

- Pollution from cassava processing facilities is another environmental concern. Deforestation as a result of clearing of large areas of land for commercial farming is one of the biggest factors affecting environmental sustainability of the sector.
- In addition, mono-cropping of large cassava plantations also leads to the loss of biodiversity and thus has negative long-term impacts on the environment.

Does the chain/commodity fit with the focus of Government programs and priorities?

Yes, cassava is a high priority at national and East Java provincial levels:

- The Government of Indonesia formulated a roadmap for biofuel development in 2006. The roadmap is targeting a 10% reduction in the country's consumption of petroleum-based fuel by 2010, by developing 5.25 million hectares of energy crop plantation including cassava, (Tim Nasional Pengembangan BBN, 2006).Government has prioritized the increase of bio-ethanol production for which cassava is a main commodity. Therefore the government development priorities for the cassava sector are focused on production of improved varieties for bio-ethanol.
- Cassava production has increased by 17% nationwide in the period 2007-2011 and Lumpung is the biggest producer with 9,017,137 tonnes in 2011 or 38% of all national production.
- While the production in East Java and NTB has gone down by 8% and 15% respectively, in NTT production has gone up by 38%, indicating both potential and prioritization of cassava production in this Province.

How project-crowded is the sector?

The development of the cassava sector is supported mainly by private sector. There aren't any current major donor funded projects targeting cassava growers.

External risk

There are two main risks associated with the cassava industry development:

- The first one is the substituting of traditional varieties more suited to human consumption with improved varieties for the bio-fuels industry, which cannot be consumed fresh and may impact negatively on local food security.
- The second one is related to land availability and the complex issues of resettlement of local populations potentially leading to social unrest.

Structure of the chain

What is the potential for improving market access?

- In East Java, the number of cassava processors is high and the size of each processor's production is relatively small. Therefore, the cassava market in East Java can be considered competitive, making marketing more efficient.
- Improving market access for export or industrial use requires direct links between the producer and large traders of processing businesses.
- These depend on the volume of local production, the available access infrastructure and transport links.

What is the scalability and transferability potential?

- There is potential for scalability with the increasing production of cassava for bio-ethanol.
- In terms of transferability, the value-chain analysis of this commodity will inform other sectors linked to the bio-fuels sector development.

Is there potential for post-harvest productivity / value-added?

- There is significant potential for post-harvest value adding at the farmer level prior to delivery to processors. Some very good village processing models exist.
- Relatively small amounts of Indonesia's cassava production are used for food consumption, majority being destined for the production of starch and ethanol.
- The only factor that influences the income from cassava is the quality of the produce which depends on the farmer's direct access to processors, minimizing deterioration and the effects of post-harvest physiological deterioration.
- In Indonesia two ethanol plants are currently operating, both using molasses as raw material. The industry is also looking at cassava as a feedstock. Since molasses is also used to produce monosodium glutamate, cassava may be an attractive alternative. At least two companies are currently making plans to use cassava as a feedstock. Indonesia's largest-listed energy firm, PT Medco Energi Internasional, plans to spend US$135-$144 million on three ethanol plants, each needing an investment of $45 million. One plant in Sumatra's Lampung will have a capacity of 60 million litres of cassava-based ethanol a year, which is going to be exported to India, Korea, Taiwan and China.

Is there sufficient infrastructure availability?

- No. There is evidence that farmers often incur post-harvest value losses due to bottlenecks along the chain, which suggest that infrastructure is not sufficiently available.
- The main infrastructure needed at producer level is the facility for storage and transportation that will ensure rapid movement of product prior to deterioration.

6.3.5 Cocoa

Priority statement

The cocoa sector has a **MEDIUM - HIGH** potential for pro poor development. Indonesia currently has a significant export market. There is significant potential for the sector to attract investment from multi-nationals to further develop the sector and support growers. Programs are in place to support the adoption of better farming practices and manage diseases. Value adding potential is high considering the multiple product creation opportunities.

Table 8. Cocoa production statistics for selected provinces within Indonesia, 2010

Basic Statistics	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Area Harvested (ha)*	61,000	6,000	47,000	1,650,000
Volume of Production (tonnes)*	23,000	1,600	13,000	850,000
Yield *	850	466	534	825
Value of Production IRD billion (million USD) [1]	509 billion ($53.9)	34 billion ($3.6)	277 billion ($29.3)	
People Employed	> 1 million smallholder growers, with approx. 50% located in Sulawesi.			
Sources: * *Badan Pusat Statistik 2010 (preliminary figures)* [1] *USD / tonne 2329.50 at 22 Mar 2012 from http://www.icco.org/* [2] *http://www.cargill.com/news/releases/2008/NA3007562.jsp*				

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

- Cocoa is the main income source for over a million Indonesian smallholder farm families.
- Hundreds of households also benefit from the value addition occurring in the country e.g. Cargill's bean drying facility in Makassar employs 55 people and they were investigating investing in a new cocoa processing facility.

What is the potential to increase income for producers?

- There is good potential for increasing incomes through increased productivity and improved market access.
- Farmers, through good on-farm management including new variety selection, pest and disease control and harvest and post-harvest handling, can ensure the production of good quality cocoa.
    - At world prices of $3,600 (mid 2010) farmers are getting around IDR 12 million/ha for yields of 0.5 t/ha. With new varieties and integrated pest and disease management strategies, yields could be increased by 30% and incomes would increase to IDR 16 million/ha.
    - There are also discounts of around IDR 2.3 million/t being incurred for low quality cocoa, compared to West African cocoa.
- High level farm management is lacking in the sector and currently contributing to poor yields.
- With world cocoa prices rising to around USD 2,300/t, and cocoa growers receiving around 80% of that price, growing cocoa offers the opportunity to improve farm family incomes and enhance local economies.
- Use of branding and certification could improve market access and prices.

What is the agro-ecological feasibility?

- Cocoa is only produced in countries within 10oN and 10oS of the Equator where the climate is appropriate for growing cocoa trees. The largest producing countries are Côte d'Ivoire, Ghana and Indonesia.

- The cocoa tree is sensitive to a lack of water so the soil must have both water retention properties and good drainage.
- Variations in the yield of cocoa trees from year to year are affected more by rainfall than by any other climatic factor. Rainfall should be plentiful and well distributed through the year. This requirement can have the largest impact on productivity of cocoa from Indonesia.
- More than half of Indonesia's cocoa is grown in the eastern provinces.

Sustainability (economic and environmental)

- After nearly three decades, cocoa production in eastern Indonesia now faces serious challenges to its long-term sustainability, with total production starting to decline in established growing regions. Farm productivity has fallen from a high of about 1.3 t/ha/ year in 2003 to about 0.8 t/ha/year currently. This decrease is due to a number of factors, including declining soil fertility, pests and diseases and competition for land.
- Cocoa is a globally marketed commodity. It is a high value cash crop and the government is committed to supporting landholders to increase area and production through better farming practices and breeding.
- The country is attracting investment by multi-nationals at both the producer and processing levels of the value chain due to the productive potential of Indonesia and the worldwide demand for chocolate and chocolate products.
- Environmental issues are not currently considered a major concern for the sector largely due to the farming system encouraging bio-diversity with the use of shade trees and the lack of monoculture plantation production.

Does the chain/commodity fit with the focus of Government programs and priorities?

Cocoa is a key strategic crop for Indonesia and its long term sustainability is of vital interest to the country.

- A Cocoa Sustainability Partnership was established in 2006.
- In mid-2008, the Indonesian Government announced a large national program for revitalisation of the cocoa industry (known as Gernas Pro Kakao). Long term goal is to bring the total planted area to around 900,000 hectares of productive cocoa.
- The Indonesian Government has also signed up to the International Cocoa Agreement 2010.

How project-crowded is the sector? (To what extent are sector needs addressed by current donors?)

There have been a number of projects to support the sector. ACIAR and DFAT have contributed funds to the national program for revitalisation of the cocoa industry, and the cocoa improvement program is part of the Smallholder Agribusiness Development Initiative in eastern Indonesia, under the Australian Indonesia Partnership. The International Finance Corporation Program for Eastern Indonesia Small-Medium Enterprise Assistance (PENSA) has an agricultural finance activity beginning for cocoa in Sulawesi.

External risk

- Cocoa production is highly sensitive to changes in weather conditions: duration and intensity of sunshine and rainfall as well as soil moisture and temperature.
- There is a production risk associated with increasing pressure from pests and disease, ageing trees and declining soil fertility.

Structure of the chain

What is the potential for improving market access?

- Export markets are significant for this sector given the limited geography globally suitable to cocoa production.
- Indonesia is the world's third largest cocoa exporter. It potentially could attain greater market access if it continues on its course to increase the quantity and quality of production. This however may be tempered by the 2010 introduction of an export tax on cocoa beans aimed to encourage more processing of cocoa beans in Indonesia so the country would benefit from marketing value-added products.

What is the scalability and transferability potential?

- Virtually every province in Indonesia grows cocoa with over half of existing production coming from eastern Indonesia.
- Programs have begun to be implemented in recent years to support the growth of the sector and assisting growers to adopt better practices to increase yield and income.
- The scalability potential is high as is the transferability potential considering the widespread production of cocoa across Indonesia.

Is there potential for post-harvest productivity / value-added?

There is potential for post-harvest improvements and value adding. The sector is already attracting interest from global multi-nationals such as Cargill, one of the world's largest cocoa and chocolate producers.

- Value adding through expanding drying and processing facilities would add great value to the sector and provide more employment opportunities.
- There needs to be more support to adding value to the raw cocoa so that additional benefits are retained within Indonesia.

Is there sufficient infrastructure availability?

- Not a lot of information is available regarding the quality of infrastructure. There is a number of processing and drying facilities already established in Sulawesi in particular where the majority of production is sourced, so there is an assumption that there is at least some infrastructure available to support this activity.
- Any future development would require additional supporting infrastructure.

6.3.6 Coffee

Priority statement

This commodity presents a **LOW – MEDIUM** priority for pro poor development. The coffee sector has potential to improve incomes with increased quantity and quality of production but requires careful management to maintain the quality and reputation of the coffee. The

coffee sector is increasingly consolidating into an estate cropping system with some out-growers. Private sector investment and development have been informed by comprehensive research on the development potential of the industry. There is some limited potential for value-adding at producer level.

Coffee cultivation techniques across Eastern Indonesia are rudimentary, with average yields (ranging from 15 0kg/ha to 40 0kg/ha) comparing poorly to intensive estates in Java (>1,000 kg/ha) and smallholders in Vietnam (>2,000 kg/ha for Robusta).

Table 9 outlines some basic production statistics for the study provinces.

Table 9. Coffee production statistics for selected provinces in Indonesia, 2010

	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Area of Production (ha)	54,000	12,000	72,000	1,555,600
Volume of Production ('000 tonnes)	31,000	5,600	20,000	660,000
Yield (t/ha)	Arabica 0.6 Robusta 0.9	0.7	Arabica 0.6 Robusta 0.5	0.8
Value of Production (IDR)				
People Employed	211,000	15,000	119,000	1,400,000

Source: BadanPusatStatistik, 2010

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

- Yes. There are 75,000 families that could benefit from a coffee initiative in Flores alone.
- Including other parts of Eastern Indonesia there is potential for reaching a large number of rural poor households, mainly involved in production and some post-production activities.

What is the potential to increase income for producers?

The potential to increase household income is moderate as cash income from coffee for farmers in Eastern Indonesia is only a minor contributor to their total income/livelihood. That is, these farmers effectively participate in a range of distinct value chains.

- Developing and adopting improved knowledge and practices in coffee cultivation techniques has the potential to increase yields to at least 600 kg/ha (thereby doubling production).
- The opportunities for price increases through quality improvements are considerable. In the case of Flores coffee, 'natural' or 'semi-washed' Arabica coffee was being sold (local factory door price) for only IDR 16,000/kg in the 2006 season, translating to roughly 20 to 25 cents below the NY 'C' price in export markets. From experiences in origins such as East Timor, it is likely that improved Flores Arabica could, however, be sold at prices of 10 to 15 cents/lb above the NY 'C'. (Toraja and Mandheling coffees are currently sold at prices 40c/lb over the NY 'C', which in a 120c/lb market equates to an FOB price of $3.52/kg or IDR 32,000).

- Supporting efforts to create a Geographic Indication for Flores and/or West Papua coffee and supporting eco-labelling (Organic, Fair Trade, Rainforest Alliance, etc.) efforts all may contribute to increasing incomes for coffee producers.

Does the chain/commodity fit with the focus of other donor and Government programs and priorities?

- Local governments in the districts of Manggarai and Ngada in Flores give a high priority – including significant budget allocations - to the coffee sector.
- The newly released Regulation of Minister of Trade of The Republic of Indonesia Number 10/M-Dag/Per/5/2011 on the Export of Coffee (May 3, 2011) simplifies exportation procedures.
- Coffee has also been the focus of numerous donor-funded programs and private investment in the development of the industry and coffee estates.

How project-crowded is the sector?

There are a number of projects supporting small-scale coffee producers.

- The Islamic Development Bank provides about USD $120m for small-scale coffee farmers on Sumatra Island.
- The Ministry of Agriculture works with the Indonesian Coffee and Cocoa Research Institute (ICCRI) and Nestlé Indonesia to try and improve the productivity of local coffee growers.
- Vredeseilanden (VECO) funds a coffee value chain improvement project.
- There is the Agricultural Market and Support Activity (AMARTA) Phase II (USAID-funded and implemented by ACDI/VOCA) agribusiness project investing USD $20 million from 2011 through mid-2016 to support horticulture, cocoa and coffee sectors in West Java, North Sumatra, South Sulawesi, and Bali.
- The IFC Program for Eastern Indonesia Small-Medium Enterprise Assistance (PENSA) have an agricultural finance activity beginning for cocoa in Sulawesi which in later stages may include coffee and other parts of Eastern Indonesia.

What is the agro - ecological feasibility?

- The soils and climate in Flores and parts of West Papua are highly amenable to coffee production – both Robusta and Arabica.
- There is probably some niche low-volume opportunity for Arabica in Sumba and quite a lot of Robusta opportunities for development in other parts of NTT and NTB (Sumbawa and West Timor). Any coffee initiatives must however consider the full complexity of farming systems and farmer decision-making in this region in order to be successful. There may also be some limitations on water availability for washing of coffee during the end of the dry season.

Sustainability (economic and environmental)

- The demand for high quality specialty coffees from Eastern Indonesia is likely to remain high. The key challenges are to address the infrastructure weaknesses, poor business enabling environment (high formal and informal taxes, high port and export costs, etc.), and ensure greater share of profitability to farmers for their efforts to improve the quality of coffee.
- Forest clearing for coffee production is an ongoing concern in the Sulawesi highlands, reflecting an extensive, rather than an intensive, approach to agriculture.

- The severe thinning or clearing of forests for planting shade-grown coffee is also a major concern. Considerable biodiversity is lost both above and below ground. Microorganisms in particular are affected through clearing, soil disturbance, and exposure. Soil erosion is common in sloping areas with poor agronomic practices. Coffee pulp often is disposed of in waterways which lowers oxygen content and can kill fish.

External risk

The risks facing the sector are quite high.

- Coffee is characterised by a competitive international market with high quality demands and environmental and social concerns linked to branding. If the:
  - business enabling environment is not improved,
  - farmers are not able to meet the quality standards demanded by the market,
  - initiatives do not address the full complexity of farming systems and decision-making processes,
  - profits are not more equally distributed to producers, and/or
  - no effective extension systems are in place to address needs for improved agronomic and post-harvest practices, then the sector is unlikely to be competitive.
- There is also risk in the management of any labelling as misuse or poor quality management will erode the value of such labelling and product will fail to access markets.

Structure of the chain

What is the potential for improving market access?

Market access could be improved using Geographic Indication (GI) labelling and certifications as Eastern Indonesian coffee is favoured for its low acidity and rich flavour.

- Interaction with the international coffee roasting community has helped raise the profile of ‘Bajawa’ and ‘Kalosi’ as specialty origins in key markets. Already, this has resulted in increased demand for both coffees and increasing origin engagement by international buyers. Higher prices are now being offered at origin as a result.
- This style is different to the natural high acidity-low body coffee produced in Brazil and Central America.
- Consumers in the largest export market (USA) prefer the Indonesian style of coffee, putting the industry in a favourable position.
- GI and eco-labelling will further increase access to important niche markets.

Is there potential for post-harvest productivity / value-added?

There is moderate potential for post-harvest improvements and value adding.

- At the village level, the introduction of wet-processing systems requires reliable access to water supply during the harvest period (which frequently coincides with the dry season).
- Effort needs to be made to identify and then promote and provide training on those varieties of coffee and those processing methods most in demand by the market. .
- Value can be added by using GI and certification to increase the price.

Is there sufficient infrastructure availability?

There are significant infrastructure challenges in NTT that could restrain any coffee sector initiative.

- Current inability to containerise coffee at a port in Flores severely limits the development of a distinct market identity for Flores coffee and contributes to the isolation of Ruteng traders from international markets.
- The administrative requirements for Flores based export activities are considerable, involving coordination with both Kupang and Surabaya.
- Insufficient formal credit appears to be available in the coffee districts for agricultural investment and upgrading.
- Road construction to remote coffee-growing villages is likely to be an issue, limiting accessibility and the ability of coffee value chains to transfer price incentives to farmers.

What is the scalability and transferability potential?

Successful initiatives in coffee growing districts in Eastern Indonesia can definitely be expanded to other areas in Indonesia.

- Successful Arabica efforts in East Java, Flores can be expanded to Arabica growing areas in other provinces in Java, in Sulawesi, Sumatra and possibly to Papua and West Papua, Sumba and West Timor.
- Efforts with Robusta can likewise be expanded to lower elevation areas with coffee sector potential in Eastern Indonesia (e.g. Sumbawa, Alor, West Timor, Lombok, etc.) and to other parts of Indonesia.
- However, the coffee sector in other parts of Java, in South Sulawesi and in Sumatra is likely to be well in advance of Eastern Indonesia.

6.3.7 Dairy

Priority statement

Whilst the dairy sector has a high potential for further development, given the relatively small number of farmers, its presence in only one of the five study areas and the high levels of support provided to farmers by value chain participants, this sector is considered a **LOW – MEDIUM** priority for pro-poor agribusiness development.

Ninety seven percent of all of Indonesia's dairy cows are located on the island of Java in the provinces of East Java, Central Java and West Java. East Java is the largest milk producer, accounting for 57% of Indonesia's milk production (see Table 10). East Java has shown the largest growth over the last five years with dairy cow population and milk production increasing annually by an average of 15% and 24% respectively.

Table 10. Dairy production statistics for selected provinces in Indonesia, 2011

Basic Statistics	East Java	East Nusa Tenggara (NTT)	West Nusa Tenggara (NTB)	Indonesia
Volume of Production (million litres) [1]	531.7	-	-	925.8
Value of Production (Rp billion) [2]	1.86			3.24
People Employed [3]	There is between 100,000 and 150,000 dairy farmers; over 30 companies involved in milk processing producing 870,000 tonnes of dairy products in 2009 80% of dairy farmers are smallholders, of these 80% are contracted to dairy processors and 20% are independent.			
Source:	*[1] Badan Pusat Statistik 2011 (preliminary figures): current short fall of milk. Demand outstrips supply.* *[2] Rp. 3,500 per litre - IFC; Dairy Industry Development in Indonesia Final Report - May 2011* *[3] IFC; Dairy Industry Development in Indonesia Final Report - May 2011*			

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

- No. The number of dairy farmers in Indonesia is between 100,000 and 150,000. Despite the government support for this sector, this number is not likely to increase to even 500,000 and the production footprint is small.
- The continuing expansion along the value chain offers employment for workers as investment in new processing plants continues.

What is the potential to increase income for producers?

- Moderate to high. Returns made by dairy farmers are considered to be good supplementary income.
- In East Java, 94% of cows are owned by individual farmers where dairying is only a part time business for the majority. However, for some individual farmers milk is their main income source.
- Farmers get paid on milk quality and output, so efforts to improve these factors will likely result in increased income for producers. There is a lack of transparency of information regarding prices flowing down to farmers.
- Milk quality is an issue. Farmers could earn on average at least IDR. 500–600 per litre more for milk with low total solids and total plate count (TPC). Low milk quality is due to poor management practices and cool chain logistics.
- Access to better genetics will also improve herd productivity, and the provision of better quality feed will also increase milk output per cow.

What is the agro - ecological feasibility?

- Limited information exists on the ideal characteristics of dairy locations in Indonesia; however one report indicates that there is a scarcity of land at suitable elevation for dairy cattle farming.
- Milk production is dependent on access to an abundant supply of feed. This is a limiting factor in location.

Sustainability (economic and environmental)

- The dairy industry has been expanding to meet the increasing demand for milk and dairy products.
- Liquid milk consumption has increased with growing awareness of the people of the importance of milk for their health. Over the last six years the volume and value of the liquid milk consumption market has grown by 16 and 20% respectively.
- The liquid milk market segment is forecast to continue to increase by 16% per year and by 2014 reach 604,970 tonnes.
- With individual farmers constituting 94% of the dairying sector and each farmer typically running 3 or 4 dairy cows on small areas, no specific environmental concerns are evident in the literature available.

Does the chain/commodity fit with the focus of Government programs and priorities?

Yes, dairy is an important industry sub sector. Specifically,

- The Government is encouraging the development of the dairy and beef industries in Indonesia and is providing IDR 145 billion of subsidy for the purchasing of dairy cows and beef cattle. Four major Indonesian banks are responsible for managing this subsidy scheme.
- The Government has committed resources to support the development of Indonesia's dairy industry with the aim to achieve 50% self-sufficiency by 2014. To achieve this target a blue print for dairy industry development has been developed.

How project-crowded is the sector? (To what extent are sector needs addressed by current donors?)

- A wide range of support is provided to dairy farmers by the cooperatives and milk processors.
- Training and extension to dairy farmers has been provided by various international aid organisations in cooperation with local research institutes; private companies that supply equipment and products to dairy farmers; the DGLAHS and Regional Government and large milk processors.
- The IFC recently funded a detailed value chain study of the sector to identify opportunities and roles for IFC to promote a sustainable and inclusive dairy industry in Indonesia.

External risk

- A moderate to high risk to maintaining productivity exists during the dry season due to the limited availability of feed for dairy cows. The supply of milk from the major production centres on the island of Java declines as a result.
- A moderate to high risk exists regarding quality. The Government has a milk quality standard (SNI) which stipulates the quality parameters for fresh milk. Currently only 12% of all dairy farmers meet the SNI. The main problem with milk quality is very high TPC above the SNI level of one million.

Structure of the chain

What is the potential for improving market access?

- Import regulations on fresh product limit the import of fresh milk and products to the domestic market.
- The domestic dairy sector has significant potential to increase supply to meet the increasing demand by domestic consumers.

What is the scalability and transferability potential?

- Technical innovations leading to income gains are highly transferable. This requires extension to the farmers to encourage adoption.
- Industry activity is concentrated in Java. Other areas of Indonesia may be suitable climatically and economically for dairy development. Availability of feed is an issue for expansion. Currently the industry relies predominantly on the traditional feed gathering system of gathering forage grasses from the farmer's land, or from along the sides of roads, irrigation ditches, forests or other such places.

Is there potential for post-harvest productivity / value-added?

- The milk supply chain in Indonesia is quite developed, with many companies and multinationals already invested and looking to invest further. There are 27 companies operating in powdered milk, 4 companies operating in sweetened condensed milk, and 31 companies operating in liquid milk.
- There has been minimal new investment in dairying over the last five years however two major dairy processors are in the process of expanding operations into North Sumatra.
- There is potential to grow Indonesia's milk export market, particularly into the Asian market.

Is there sufficient infrastructure availability?

- No. Distributing perishable produce to major urban centres in Indonesia's 33 provinces presents a major problem. A lack of refrigeration and an inferior distribution system results in problems maintaining a cold chain system for perishable products made from milk.
- More milk cooling units need to be placed as close as possible to farmers at MCCs in the farmer villages to address poor quality standards.
- GoI supports the expansion of the industry and provides loans to farmers to buy dairy cows. However access to the money is difficult as many farmers don't have collateral to meet the bank requirements.

6.3.8 Maize

Priority statement

The maize sector has a **HIGH** potential for further development, particularly as it involves a significantly large number of poor households. Simple technology enhancements such as adoption of hybrids and management of irrigation can significantly address productivity issues.

Maize is the second most important cereal crop in Indonesia after rice. In eastern Indonesia maize is used for both human consumption and for animal feed. Total maize

production in Indonesia is 17 million tonnes (Table 11). East Java is the largest producer of maize in Indonesia (close to 30%). East Java and NTB productivity achieve yields in excess of the national average of 4.5tonne/ha.

Table 11. Maize production statistics for selected provinces in Indonesia

Basic Statistics	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Area harvested (ha) *	1,204,063 31%	89,406 2%	247,687 6%	3,896,855
Volume of Production (tonnes) *	5,010,626	442,426	522,970	17,230,172
Yield (MT/ha) *	4.5	5.1	2.1	4.5
People (farmers) employed	2,200,000	170,000	500,000	7,600,000

*Source: * Badan Pusat Statistik 2011 (preliminary figures)*
*** People Employed: Assuming an average 0.5 Ha farm size per farmer*

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

- Yes, a large number of smallholders grow maize in Indonesia. Estimates are in the range of 7 million farmers. They are mostly poor farmers with limited access to finance and agro-inputs. In EJ, NTT and NTB the total expected farmer coverage is around 2.9 million farmers.
- Demand for maize, especially from the livestock feed sector has been steadily increasing since the early 2000s. The expansions of feedmills in EJ (e.g. Malindo, Sierad Produce, Wonokoyo, etc), enhances market access opportunities for poor maize farmers. For NTT and NTB, the development of the poultry industry in the region presents another market opportunity.

What is the potential to increase income for producers?

Medium. There is significant potential to significantly increase maize yields, which are currently poor due to inadequate crop nutrition and crop husbandry, and variable climate.

- A recently conducted scoping study showed that yield of maize in Kupang (NTT) was 2.4 tonnes/ha and in Timor Tengah Selatan was 1.2 tonnes/ha, which was significantly lower than national average of 4.5tonnes/ha. Important productivity constraints faced by maize farmers include: low grain prices during harvest; high input prices, large distances between maize production areas and feed mills, an undeveloped seed supply sector, lack of promotion of local improved maize varieties (OPVs and hybrids) by government research centres, and lack of farmer capital.
- Increased adoption of hybrid varieties in production systems offers the potential for significant production increases. However, the high price of hybrid seeds has forced some farmers to use recycled hybrids, with lower yields than the pure hybrids. At present, the main factor causing high price of seeds is the distance between farmers and the seed supply industry, especially hybrids bred by private companies.
- Post-harvest storage may provide opportunities to manage market fluctuations. However, unless quality is managed effectively post-harvest losses can be high and negate any marketing benefits.

- Poor agronomic practice and the inability of farmers to afford inputs such as fertiliser often result in suboptimal yields of maize. For many farmers, maize is a supplementary income for other agricultural activities.

Does the chain/commodity fit with the focus of Government programs and priorities?

Yes, maize is a high priority at the national and provincial Government levels. Specifically:

- In the Strategic plan (Renstra) 2009-2014 the MoA stated that maize, along with beef, rice, soybean and sugar are the focus of development. On average the production of rain grown maize has increased approximately 10% annually during the period 2005 to 2009.
- The government of NTB has launched the PIJAR "SaPI, JAgung ,Rumput laut – cattle, maize and seaweed" program, which aims to make the province a key source of maize and to increase maize production from 290,000 tonnes in 2010 to 613,000 tonnes by 2013.
- In NTT, the provincial government has launched the "anggur merah" program to enhance economic growth and increase food security in which the maize sector is a focus of development.
- The MoA has set national targets to produce 26 million tonnes of maize by 2013. The provincial production targets for 2013 are: EJ: 7.4 million tonnes, NTT: 1 million tonnes and NTB: 0.6 million tonnes.

How project-crowded is the sector? (To what extent are sector needs addressed by the current donors?)

- There is a limited presence of funding bodies and projects in the maize sector. IFC, Worldbank and DFAT have provided intermittent input to the sector in the past.
- ACIAR has been involved in maize research for the past 2 decades. The sector has quite strong government support but limited donor support.

What is the agro-ecological feasibility?

- High. Given the importance of maize in the rural economy, the crop is grown across the whole country.
- Maize is grown mainly (>80%) in rain-fed areas, often in conditions of low soil fertility and erratic rainfall, and is often exposed to drought conditions. The agro ecology fits with some of NTT, NTB and EJ characteristics.
- Java provinces account for over 50% of national maize production with Lampung, South Sulawesi, North Sumatra, NTT and Gorontalo being other important production centres.

Sustainability (economic and environmental)

- The Economic sustainability is medium. The demand for maize as food and feed has been steadily increasing. However, for NTB and NTT, price instability at the farmer level can occur in areas where food and feed industries are not located. The farmers in those regions are faced with a lack of marketing infrastructure and post -harvest market opportunities.
- Maize production has also been increasing over this time, largely as a result of hybrid varieties which are more profitable than open pollinated and local varieties.

- With the increased adoption of hybrid varieties, the seed industry has become an attractive business proposition. This could encourage more participation of the private sector in maize agribusiness, resulting in a more rapid increase in production for farmers.
- Maize is often grown on steeply sloping uplands, where annual cropping and inappropriate cultivation methods increases potential for soil erosion and nutrient loss, leading to long-term soil fertility and yield decline
- Continuous cropping practices commonly used for maize-cassava, maize-rice, maize-maize systems can adversely impact soil fertility, particularly where famers cannot afford inputs such as fertilizer.

External risk

- High. Several socio-economic constraints impact the returns from maize production. These include; the high price of inputs particularly hybrid seed and fertilizers, low maize prices immediately post-harvest, and a lack of access cash capital.
- Seasonal climate variability is also a significant risk to maize production. Indonesia's production is highly dependent upon rainfall. Only 17% of the country's cultivated area has access to irrigation infrastructure, and only 10% of this land is effectively irrigated. More than 80% of the agricultural activity depends on rainfall for irrigation.

Structure of the chain

What is the potential for improving market access?

- Yes definitely. Indonesia is a net importer of maize with minimal export flows. Maize imports fluctuate according to the needs of the internal market. There may be opportunities for this sector to supply to the bio-fuel industry.
- A promising market is the poultry feed mix processors which require a large amount of maize in their feed ration mix.
- Fresh corn for human consumption is also a market that warrants investigation as maize forms a large component of East Nusa Tenggara's staple food consumption.

Is there potential for post-harvest productivity / value-added?

- Yes. Maize is a primarily used for animal feed. The by-products of maize based biofuels such as grain flour and solid residues may be used as a source of livestock feed. The fast growth of domestic livestock and feed industries presents opportunities for producers. However improvement is required to provide incentives for farmers to do so. Improved transparency in grading systems and better management of post-harvest quality is required to meet feed industry requirements.
- Price uncertainty is more common for the wet season harvest, when most farmers do not have appropriate shelling, drying, or storage facilities. In NTT, NTB and EJ improvement in post-harvest drying techniques is required along with development of good husk cove, development of weevil tolerant varieties, and the availability of improved storage. What is the scalability and transferability potential?
- High. Every province in Indonesia grows maize with Java being the biggest producer. An effort to increase production through use of higher yielding hybrid varieties has begun. The scalability potential is high as is the transferability potential considering the widespread growing of maize across Indonesia.

What is the scalability and transferability potential?

Every province in Indonesia grows maize with Java being the biggest producer. An effort to increase production through use of higher yielding hybrid varieties has begun. The scalability potential is high as is the transferability potential considering the widespread growing of maize across Indonesia.

Is there sufficient infrastructure availability?

- No. Irrigation infrastructure is lacking and drought is indeed the main and nearly exclusive risk for maize cultivation leading to potential crop failure.
- Poor roads and transportation systems in some provinces make it very difficult for farmers to sell their maize to the district or sub-district markets.
- Post-harvest machinery is normally not present at village level in NTT and NTB. Flat-bed drying facilities were found in some areas but are often not being used by farmers due to feasibility/human capacity issue.

6.3.9 Mango

Priority statement

The mango sector has a **HIGH** potential for pro poor development. Indonesia has a large domestic market and a seasonal comparative advantage over northern hemisphere competitors in the export market. There are 4 main opportunities to improve mango famers' income:

(1) Extending the season to spread out production,
(2) Evaluating new varieties,
(3) Developing export supply chains, and
(4) Exploring processing opportunities.

East Java is the second largest producer of mango in Indonesia, with both NTT and NTB also providing a significant contribution to mango production in Indonesia. Within these provinces there are over 1 million people that rely on mango as a source of income.

Table 12. Mango production statistics for selected provinces in Indonesia

Basic Statistics	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Area of Production (ha)	57,572[1]	8,239[1]	12,935[1]	186,000
Volume of Production (tonnes)	694,314	99,360	155,999	2,243,440
Yield (t/ha)	-	-	-	12.06
Value of Production [1]	-	-	-	IDR 11.85 trillion[2] ($USD 1.2 billion[2)] IDR 2.7 trillion[3] ($USD 291 million[3)]
People Employed[4]	771,460	110,400	173,332	2,492,711

Source: *Badan Pusat Statistik*

[1] Estimates based on national yield data of 12.06 t/ha. These estimates also include wild harvested fruit. There may be a blurring of data with NTFP, as some of the fruit will be harvested from forest and forest margin communities.

[2]FAOStat 2009 - $561/tonne

[3] Farm gate estimate of $130/tonne – Baker 2008 "The potential for mangoes in Eastern Indonesia", Final Report, ACIAR, Canberra, Australia.

[4] Estimates based on national yield of 300 kg per tree/annum and ownership of 3 trees per farmers. Source: Mango as a priority in regional agribusiness policy system- Analisis Kebijakan Pertanian vol. 7 no 2. June 2009: 189-211 http://pse.litbang.deptan.go.id/ind/pdffiles/ART7-2e.pdf

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

Yes, absolutely. There are over 1 million farmers involved in mango production across the three provinces.

- Potential exists for job creation with increased on farm and community based processing for products such as dried mango.
- Improved productivity and prices have potential to significantly reduce poverty as most mango farmers live below the poverty line. There is a value adding opportunity in buying the cheap, unused (C-grade) fruit in the high season
  - These can be processed and sold as mango cheeks or aseptic pulp, stabilizing it for both international and local markets.
  - This will attract post-harvest job creation for poor households and add value through the supply chain.

What is the potential to increase income for producers?

There is a high potential to increase income for producers and chain participants through extending the season to have a longer harvest period, evaluating new varieties, development of export markets and exploring processing opportunities. Utilising these interventions could raise farm incomes (per 0.5 ha) from IDR 5 -6 million to over IDR 20 million, which is much higher than the poverty line of IDR 7-8 million.

- Significant losses, from 15% to 100% of the crop, during the growing season can be reduced using a combination of fruit bagging, IPM and chemicals to control pests and diseases. These strategies are low cost and easy to use.
- Recent evidence demonstrates that the use of paclobutrazol in a normal year can increase farmer's profits by up to 300% due to early access to markets. The chemical is cheap, simple to use and very effective. In particularly wet seasons trees treated with the chemical produced fruit while control trees failed to produce fruit at all. The price benefit to growers is over IDR 3,000/kg, returning good profitability to an important crop in the restricted crop options for growers in drier areas of Eastern Indonesia
- Greater emphasis on developing farmer co-operatives and shorter marketing chains by then linking with larger buyers offers great potential for higher returns to farmers, particularly in the rapidly growing modern retail market. other issues that could be addressed are:
  (1) on farm mango storage facilities
  (2) credit issues for the farmers. (Farmers are normally reliant on the local investors who lend money in advance to procure mangoes at pre-agreed prices during the harvesting season).
  (3) support to the farmers in preparing the trees and their maintenance
- The sector grew by 14.2% annually during the period 2005 – 2008.

Does the chain/commodity fit with the focus of Government programs and priorities?

Yes, it fits with government priorities. Mango is a priority product in the Ministry of Agriculture's long-term development plan and has strong market potential for domestic as well as export markets.

- The national target for 2013 is to increase production from 2.2 million tonnes to 2.47 million tonnes of mango per annum. Specifically the musrembangtan 2013 document of the Director General, Horticulture stated that the government will promote mangga Gedong gincu, mangga garifta merah and harumanis as their focus of variety to be developed in the mango sector, which is the key variety of mango in East Java, NTT and NTB.
- Mango is also a focus of East Java government, with special emphasis on the Situbondo area.
- Establishment of the Centre for Tropical Fruit Studies (CENTROFS) in Bogor highlights the willingness of the Indonesian government to invest.
- The Horticulture bill recently introduced to parliament mandates sourcing of domestic produce, as well as regulation measures for production, distribution and marketing.

How project-crowded is the sector? (To what extent are sector needs addressed by the current donors?)

- Not a large presence of funding bodies and projects in the sector.
- ACIAR is engaged in mango research within the eastern part of Indonesia and is primarily focussed on production research, fruit fly management and fruit quality.
- JICA provides institutional post-harvest research (VHT) and support to encourage better fruit quality in an effort to satisfy strict import requirements of Japan.

What is the agro - ecological feasibility?

High.

- East Java produces a significant proportion of Indonesia's mangoes because it has a suitable climate with wet and dry seasons. NTT and NTB have a longer dry season than the western parts of Indonesia, which can be problematic for production of annual crops but can be advantages for mango production because mangoes require dry weather during floral initiation and set for optimal fruit set.
- In addition to that, the land conditions in NTT and NTB are best suited to deep-rooted perennial tree crops, in order to survive the wet and dry season and prevent soil degradation.

Sustainability (economic and environmental)

Both the economic and environmental sustainability is high.

- Farmer groups have successfully managed four mango export shipments to Hong Kong, Singapore and Kuala Lumpur confirming the viability of an Indonesian mango export market.
- There was also good market response to the Harumanis variety.
- Mango production is often not the focal crop produced by smallholders. Often mangoes are produced opportunistically alongside cash crops such as rice, vegetables and other crops to provide a year round income. Opportunities to increase the return of existing orchards through techniques outlines above and the strong domestic and international demand for mangoes is economically promising.
- Environmentally, mango is a suitable crop for Eastern Indonesia. Mangoes are deep rooted perennials. In NTB and NTT in particular the landscapes endure long dry seasons and short but intense wet seasons. Annual cropping presents greater potential for erosion. Perennial, deep rooted trees offer a more sustainable cropping system in sloping lands with less predictable wet/dry seasons.

External risk

The sources of risk in mango production and attempts to increase income are climatic conditions and seasonal gluts, which result in significant yield and price fluctuations.

- Low prices in the peak season are the most severe constraint for producers to adopt better management practices and pose a significant social risk for farmers in the poorer districts of eastern Indonesia.
- Technologies to expand the season are cheap, simple to use and effective so risks surrounding adoption should be low.
- Adverse weather conditions are a risk to the industry. In 2011 production halved presumably due to high rainfall at flowering and fruiting.
- Development of an export market is dependent on variety selection and timing of harvest.

Structure of the chain

What is the potential for improving market access?

There is high potential to access higher end domestic and export markets.

- Indonesia produces mangoes in different times of the year to major northern hemisphere producers but as yet has not managed to meet market demands.

- Research in Lombok shows that attempting to grow mangoes for export may be financially and technically possible in effort to lift farmer incomes, especially for farmers in the drier areas (e.g. North Lombok).
- Extending the harvest season and improving post-harvest technologies would also allow access to high end domestic markets through supermarkets and other modern retail outlets.

Is there potential for post-harvest productivity / value-added?

The potential is high.

- There is large potential for export markets and high end domestic markets if post-harvest infrastructure such as cooling, grading and quality control (vapour heat treatment) can be addressed.
- Value adding through product transformation into juice, pulp, dried mango would add great value to the sector and provide more employment opportunities.

What is the scalability and transferability potential?

The scalability potential is high as is the transferability potential considering the widespread growing of mangoes across Indonesia

- Every province in Indonesia grows mangoes with East Java being the biggest producer. Efforts to increase production and enhance marketing will be tied initially to the domestic market and the rapid increase of modern retail outlets.

Is there sufficient infrastructure availability?

Existing infrastructure in East Java and especially NTT and NTB, needs great improvements to gain access to markets other than traditional wet markets.

- Currently the infrastructure is geared towards satisfying the domestic demand for mangoes, the largest market being Central Java and Jakarta.
- Transport infrastructure is in place to move vast quantities of fruit in Java.
- The string of islands that make up the provinces of NTB and NTT are currently dependent on boat transfer which precludes rapid transport of perishable goods.
- For export markets infrastructure would be required for post-harvest processing and international transportation. A key problem for exporting produce from NTB is a lack of suitable commercial exporters in Lombok.

6.3.10 Marine Capture Fisheries

Priority statement

Artisanal marine capture fisheries are a **MEDIUM** priority for pro poor development. While this is an important sector both in terms of employment and food security, focus now is on sustainability and larger companies accessing international markets for higher returns. However small-scale marine fishery value-chain analysis is an outstanding issue.

Table 13. Fisheries production statistics for selected provinces in Indonesia

Basic Statistics	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Area of Production[2] (ha)	-	-	-	5.8 million km[2]
Volume of Production[1] (tonnes)	338,918	111,886	90,185	5,039,446
Yield[3]	Maximum Sustainable Yield = 6.4 million tonnes/year Total Allowable Catch = 5.12 million tonnes/year (80% MSY)			
Value of Production[2] (IDR million)	1,872	882	497	33,255
People Employed[2]	198,521	63,507	93,924	2,057,986[4]

Source: [1]BadanPusatStatistik (2010)
[2]Ministry of Marine Affairs and Fisheries (2007)
[3]MAFF and JICA (2011). Indonesian Fisheries Book 2011

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

The potential is high.

- Despite the marginal decline in the number of marine fishers, there are over 3.38 million people directly involved in the fishery value chain including, fishers, processors, traders, and providers of support services.

What is the potential to increase income for producers?

The potential is limited.

- An increase in the sale price could be obtained by improving access to export markets (linked to export quality infrastructure) or by improving value-adding through the improvement of local processing capacity. However these increases are unlikey to pass back to smallholder fishermen.
- For some tuna producers, improvement in eco-labeling and traceablity of tuna might increase product value and thus increase producer income.

Does the chain/commodity fit with the focus of Government programs and priorities?

Yes, capture fisheries development is a focus of government interventions.

- The Strategic Plan of the Ministry of Marine Affairs and Fisheries (MMAF) (2010-2014) is based on making Indonesia the largest producer of marine and fishery products by 2015 and ensuring the welfare of the marine and fishery society.
- Capture fisheries is a higher priority for the MMAF compared to the aquaculture as indicated by their 2010-2014 budget. The MMAF Renstra 2010-2014 document stated the budget allocation for capture fisheries is IDR 8.1 billion compared to the aquaculture budget of only IDR 4.3 billion for 2010-2014.

[4]This number represents only marine fishers and does not reflect processors, traders and associated services (ex: boat building, mechanics, net mending)

How project-crowded is the sector? (to what extent are sector needs addressed by current donors?)

- There are 21 bilateral and 11 multilateral cooperation agreements currently in force (funded by Korea, Japan China, US, Australia, etc.). These cover: research, capacity building, infrastructure improvement, trade and natural resource management.
- There is also a lot of research being conducted at the Provincial level. For example, the FAO implemented Regional Fisheries Livelihood Programme for South and Southeast Asia (RFLP) program in Kupang, NTT, which focuses on providing training and capacity building for fishers.

What is the agro - ecological feasibility?

The ecological feasibility is low.

- Indonesia has 5.8 million km^2 of marine waters, a Maximum Sustainable Yield (MSY) of 6.4 million tonnes/year and a Total Allowable Catch of 5.12 million tonnes/year (80% MSY). Current marine production is 5,039,446 tonnes. Therefore, a dramatic increase in marine fisheries effort could be environmentally unsustainable; however different fisheries must be examined separately.

Sustainability (economic and environmental)

The economic and environmental sustainability is moderate.

- The sector growth is very low compared to the other sectors in fisheries. The marine capture fisheries growth for 2005 to 2009 was 2.1% per annum. The figure for 2010 and 2011 is even less at 0.4% per annum. The highest growth in the fisheries sector is achieved by aquaculture with growth at 21.9% per annum for 2005 to 2009 and 11.1% for 2010 and 2011.
- At fishers level, the economic sustainability of fishing is directly linked to the status of the targeted fishery resource, as well as the cost per unit effort (determined by input costs such as fuel and equipment prices). The shift to aquaculture fisheries however, suggests that cost per unit effort is rising.
- The country has an abundant marine fishery with 76% of its surface area being seawaters. As such, Indonesia has a considerable challenge in implementing effective monitoring, control and surveillance of its territorial waters and protecting the sustainable and legal use of its marine resources.
- The two main areas of environmental concern are the tuna fishery and coral reef fishing, both of which need to be closely regulated in order to avoid damage to valuable species and vulnerable habitats.
- Tuna exporters have recently identified that sustainability is an important issue for tuna. There is a reported decrease in tuna stocks. Exporters blame the central government policy on issuing licenses for the use of purse seine (nets) and fishing for baby tuna for this decline.

External risk

The risk is high.

- The main risks associated with the sector are the lack of sufficient management, control and surveillance capacity and the subsequent depletion of key resources.
- The impact of climate change that may impact habitats and negatively affect fish populations such as coral species.

Structure of the chain

What is the potential for improving market access?

The potential is high.

- Rural markets are accessible to small-scale fishers, however higher value urban market access requires investments in an efficient cold market chain, linking small-scale fishers to urban consumers who can offer higher prices for fresh fish.
- Access to market information is important for exporters. Most tuna exporters are experiencing difficulties in accessing the European Union market partly due to the limited information available for market players.

Is there potential for post-harvest productivity / value-added?

The potential is limited. Post-harvest value-adding is directly linked to access to processing facilities.

- The Fish Processing Units (FPU) figures indicate that while there is a large number of micro FPUs that target the national market, the vast majority are 'micro' in size. Due to their lack of capacity they offer limited value-added opportunities. There are 60,117 FPUs nationwide, of which 53,054 are classified as micro. In East Java there are 10,640 FPUs of which only 54 are classified as big. In NTB there are 3,550 FPUs and in NTT 272, none of which are considered big.
- There is potential to develop fresh/frozen tuna and canned tuna. There are 16 facilities that produce fresh/frozen tuna and 8 processors that supply canned tuna. Approximately half of them are EU market certified. However, the opportunity for smallholders to access these processors is very limited as they are international companies and the EU market is tightly controlled.

What is the scalability and transferability potential?

Scalability and transferability potential is moderate.

- While Indonesia has a large coastline and coastal population involved in small-scale fisheries the access for smallholders to large processors and markets is very limited. As a result transferability is limited for smallholders.

Is there sufficient infrastructure availability?

No

- There are 84 fishing ports and landing sites in East Java, 27 in NTB and 10 in NTT. Current fishing ports are not sufficient to ensure good handling practices and cold chain facilities needed to satisfy the quality demands of urban and international market standards.
- Improvement of export market access is directly linked to improvements in infrastructure.

6.3.11 Mungbean and Soybean

Priority statement

Soybean and Mungbean sub-sectors represent a **MEDIUM** priority for pro poor development. Soybean is in high demand both domestically and on the world market, particularly in China, and current supply cannot keep up. Similarly mungbeans offer good

potential as a cash crop in addition to the staple production of rice. There is good potential for increasing yields and incomes through improved variety selection, agronomic practices and supply chain co-operation.

Table 14. Mungbean and Soybean production statistics for selected provinces in Indonesia

Basic Statistics	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Area of Production (ha)	255,000 (S) 68,000 (M)	75,000 (S) 47 000 (M)	1,000 (S) 12,000 (M)	630,000 (S) 290,000 (M)
Volume of Production (tonnes)	360,000 (S) 80,000 (M)	83,000 (S) 52,000 (M)	1,500 (S) 11,000 (M)	870,000 (S) 330,000 (M)
Yield (t/ha)	1.4 (S) 1.17 (M)	1.11 (S) 1.12 (M)	1.01 (S) 0.84 (M)	1.38 (S) 1.15 (M)
Value of Production (US$)[1]	220 million(S) 18 million(M)	52 million(S) 12 million (M)	850 000(S) 2 million (M)	555 million(S) 75 million(M)
People Employed	-	-	-	-

Source: Badan Pusat Statistik 2011 production data

[1] FAOStat 2009 - $US638/tonne Soybean: $US225/tonne Mungbean

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

- There is a high potential to reach a large number of poor household involved in production and post-production activities associated with this sector.
- Similar to peanuts, soybeans and mungbeans offer additional income streams to farmers often in the post-rice harvest season, when a short-term legume can be rotated with rice in order to utilise residual moisture after the rice crop.
- There are estimated to be over 3 million rural poor in Indonesia.

What is the potential to increase income for producers?

- Productivity and profitability of both crops are severely constrained by a number of issues including access to good quality seed, new improved varieties, awareness about seed quality, poor management practices, and lack of access to crop loans or irrigation water.
- ACIAR trials have shown improvements in soybean yield of 25% with the use of new variety and a 170% increase from adoption of improved agronomic practices.
- Market price for soybean has soared in accordance with high world demand particularly from China. Recent import duties have also contributed to price rises, which is positive for producers.
- Impact in NTT of improved variety selection and agronomic practices on mungbean production is estimated on a hypothesised yield improvement of 0.2 t/ha over the current average yields of 0.8 t/ha, (a conservative estimate of 25% yield improvement within 5 years). Assuming penetration of these technologies to 40% of the 23,000 ha and the current average price of mungbean in the Indonesian market (IDR 3.5 million per tonne @ $410 per tonne), an additional income of US $0.8 million/annum can be expected.
- The use of a co-operatives model for mungbean farmers in NTT has been very successful in facilitating the dissemination of technology and best management

package information so that yields of 950kg/ha were achieved, in comparison to 470kg/ha under traditional systems.
- The co-operatives were also successfully attracting micro-financing options from local banks.

Does the chain/commodity fit with the focus of Government programs and priorities?

- The Indonesian government is seeking to increase the supply of locally grown soybeans and mungbeans due to concerns about rising imports of these commodities.
- NTB provincial government in particular has initiated a "soybean field school" program to promote improved crop management strategies.
- The Indonesian Legume and Tuber Crops Research Institute (ILETRI) have been very active with programs to develop new varieties for high yields and disease and pest tolerance.

How project-crowded is the sector? (To what extent are sector needs addressed by current donors?)

- ACIAR SADI is strongly represented in the grain legume sector with projects to develop new varieties and cost effective management practices; more efficient and sustainable seed system strategies and build collaboration between national and provincial government agencies.

What is the agro-ecological feasibility?

- The agro-ecological requirements are similar for soybean, mungbean, peanuts and to some extent maize and they are suitable for growing after rice harvest if sufficient water is available.
- To some extent in the higher rainfall regions soybean and mungbean follow a similar cropping system to peanuts in that it is part of a rotation with rice.
- Soybean is of less significance in terms of area planted in NTT and this may be as a result of a higher dependence on maize as a staple in the region.

Sustainability (economic and environmental)

- Soybean is a major part of Indonesian cuisine and demand for soybean is well in excess of domestic supply. Currently Indonesia runs a large trade deficit in soybean (over 1.3 million tonnes) and small deficit in mungbeans (11,000 tonnes)[5].
- The high demand from China and current price for soybean at approximately $US 660/tonne indicates that prices are likely to remain high. This is positive news for the economic sustainability of the sector but affects negatively the trade balance by increasing the value of imports.
- Soybeans and mungbeans are often grown in the rotation with rice or on upland alfisols. A grain legume produced in rotation with a rice crop will provide some additional nitrogen to the proceeding crop so long as it is correctly inoculated with the appropriate rhizobia. There is potential for inappropriate chemical usage in the quest for higher yields through insect and fungicide management.

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[5] *FAOStat 2009 – Indonesia trade data for soybean and mungbean (Bean -Dry) 2009*

External risk

- One major risk is the limited availability of quality seed for planting by smallholders.
- Farmers also have limited awareness of new high yielding varieties and good crop management techniques (programs outlined above to address these issues).
- Inter-island transport costs may limit the trade of soybean and mungbean within the region. Climate variability is also a risk particularly in the drier province of NTT.

Structure of the chain

Is there potential for post-harvest productivity / value-added?

- There is potential for value adding with soybeans but there are limited opportunities for value-adding at the producer level with mungbeans.
- Soybean is used to produce tofu and tempeh. Many small scale merchants are engaged in this value-adding activity.
- Soybean has a large list of uses such as oil, animal feed, flour and milk substitute.
- Mungbeans are commonly used for a variety of cultural dishes.
- The greatest return to the farmer can come through yield improvement and crop management.

What is the potential for improving market access?

- If education programs for farmers, such as the “soybean field school” can be expanded and include mungbeans and further encouragement and support of farmer groups can be achieved, then market access will be enhanced.

Is there sufficient infrastructure availability?

- Since 2002 the Government of Indonesia (through the Ministry of Transportation) has increased shipping costs. This increase has affected the prices of goods that are transported between islands, including soybean from Surabaya to Kupang and from Ngada to Kupang.
- Soybean and mungbean have the advantage of not being highly perishable and can be transported to distant markets; however freight costs directly impact trade.

What is the scalability and transferability potential?

The scalability potential for the improvements to varieties and management techniques is high, as success will drive further farmer interest in the region.

6.3.12 Non-Timber Forest Products

Priority statement

Non-Timber Forest Products (NTFP) is a **LOW - MEDIUM** priority for pro poor development considering the informal nature of the sector and the dissimilar harvestable products within the sector. It does not fit the traditional value chain study model. However, NTFP requires more attention due to declining forested landscapes in the regions and the fact that protected forests will still be used to harvest customary products and supply poor householders with a supplementary income for many years to come.

The NTFP sector is a diverse "sector" in that multiple products across a broad area of forest and forest margin communities can be consider as NTFP. Official estimates are difficult to produce considering the wide variety of products within the broad umbrella sector that is NTFP.

Table 15. NTPF statistics for selected provinces in Indonesia

Basic Statistics	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Area of Production (ha)	• Estimates of area, production and value for individual provinces are unavailable because of the generally unofficial nature of the broad sector that is NTFP. • Multiple products, inconclusive or unknown use of certain forested areas and precise yields are unobtainable. • Estimates of national value of production: $US1.5 Billion - $US3 Billion • Estimates of national dependence on forests vary widely between: 1.5 to 65 million.			
Volume of Production (tons)				
Yield (t/ha)				
Value of Production				
People Employed				

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

- In mid-2000, the Ministry of Forestry reported that 30 million people "depend directly on the forestry sector for their livelihoods," but did not define the degree of dependency.
- Many of these people live by traditional "portfolio" economic strategies that include common agricultural activities with gathering of NTFPs such as rattan, honey, and resins for use and sale.
- Estimated 150,000 plus employed in rattan processing alone across Indonesia.

What is the potential to increase income?

- Income increase is reliant on the ability of harvesters to participate in value adding activities. Much of the raw harvested product requires value-adding to become a saleable commodity. Types of products collected include honey, tamarind, nuts and seeds, medicinal plants and rattan.
- The potential to encourage micro-enterprise development based around NTFP to create employment and economic activities is high.
- In regions such as NTT with low arable potential, it has been suggested that sustainable harvesting of NTFP may provide a better path out of poverty than some agricultural activities or other forest based activities such as logging.

Does the chain/commodity fit with the focus of Government programs and priorities?

- No. NTFP is not a major priority at the national or provincial level.
- Ministry of Forestry policies and programs have attempted to reconcile growing conflicts over forest management through a variety of approaches.
- Efforts have extended to establishing conservation areas, with emphasis on approaches that can broadly be identified as integrated conservation and development programs.

How project-crowded is the sector? (To what extent are sector needs addressed by current donors?)

- There is limited government and NGO involvement in the sector.
- The NTFP Network for South & Southeast Asia initially funded by IUCN's Global Forest Conservation Programme is involved in Indonesia and the region.
- International agencies: World Wide Fund for Nature (WWF), the World Bank, and the Asian Development Bank, have supported government policies and programs in a variety of sites throughout the region.

What is the agro - ecological feasibility?

- Existing forests indicated an inherently feasible agro-ecological environment. The regions of East Java, NTB and NTT differ significantly in their flora and fauna. Both NTB and NTT lie to the east of the Wallace line which is a widely accepted demarcation of Eco zones indicating differences in flora and fauna between south-east Asia and Australia.
- Flora species harvested in across the zones will be different as will the feasibility of the species and the economic activities in different regions.

Sustainability (economic and environmental)

- NTFP provides many poor households with an "informal" sector income to often subsidize their so called formal income.
- Many products developed from harvested raw materials are linked to culture and religion. These foods and materials have been used for hundreds of years and provide poor households with some economic security in periods of instability, such as the economic financial crisis of 1997.
- Depending on the specific product, NTFP requires minimal capital expense to initiate and maintain the activity.
- Much of the land in NTT and NTB is steep and erodible with long dry seasons and is at risk of degradation if exposed. Maintenance of deep rooted forests is the only protective cover for many of these landscapes.
- Widespread exploitation of forest land and forest-based products continues across. Agricultural encroachment, logging, excessive harvesting of NTFP, and the grazing of livestock have, in many cases, intensified despite regulatory policies, education and extension programs, and enforcement efforts.

External risk

- Skills involved in NTFP rely on customary knowledge and as the modern "official" economy progresses there is less incentive to pass on this knowledge to other generations.
- Illegal logging continues in many parts of Indonesia and clashes between competing tenure over land could risk sustainable use into the future.
- Flora of NTT is poorly known.

Structure of the chain

What is the potential for improving market access?

- Market access is usually through the "informal" sector of the economy and many statistics are not recorded or acknowledged.

- Improvement to market access is highly dependent on the specific product harvested from the forest and whether the product is consumed domestically or exported as a highly modified one (such as rattan furniture).

Is there potential for post-harvest productivity / value-added?

- High potential in niche markets that are experiencing exceptional growth such as cosmetic oils. Global sales in this market were expected to reach over $USD 10 billion in 2010.
- Some products harvested and transformed through value adding include food and drinks from palm sugar; wild mushroom collection and cultivation; and wild honey.
- Majority of non-timber resources are already being transformed into products for sale such as baskets, textile dyes and musical instruments.

What is the scalability and transferability potential?

- The potential is high for lessons learned in one region to be transferred to another such as Community Based Natural Resource Management (CBNRM).
- For example: tree grafting, seed germination and mycorrhizal association awareness for specific trees can be implemented across regions and species.
- Skills and techniques are product specific and may have a limited transferability depending on the product.

Is there sufficient infrastructure availability?

- Due to the nature of the sector (harvest from the wild forest) much of the infrastructure requirements are minimal.
- The infrastructure requirements are high up the value chain in terms of processing the raw material and are totally dependent on the specific product.

6.3.13 Peanut

Priority statement

The peanut sector represents a **MEDIUM – HIGH** priority for pro poor development.

There is considerable scope for yield improvement in Indonesia. Current average yields across Indonesia of 1.28 t/ha are lower than average yields from the top producers, such as the USA with 3.83 t/ha and China at 3.35 t/ha. With average yields of 1.1 t/ha and prices of around IDR 4 million/ton the average income is IDR 4.4million/ha.

Demand for peanuts is consistently outstripping supply in Indonesia. The opportunity for import replacement and associated employment and income gains is significant particularly if production constraints can be addressed. Productivity and profitability of peanuts are severely constrained by a number of issues including access to good quality seed, new improved varieties, awareness about seed quality, poor management practices, and lack of access to crop loans or irrigation water.

Table 16. Peanut production statistics for selected provinces in Indonesia

Basic Statistics	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Area of Production (ha)	160,000	26,000	19,000	540,000
Volume of Production (tonnes)	210,000	38,000	24,000	690,000
Yield (t/ha)	1.28	1.44	1.22	1.28
Value of Production IDR (billion) (USD (million)[1)]	875.8 (93)	157.6 (16.7)	98.2 (10.4)	2,870 (304)
People Employed	-	-	-	-

Source: Badan Pusat Statistik 2011 production data
[1] FAOStat 2010 - $440/tonne

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

Across the provinces there is potential to reach significant numbers of households.

- The majority of peanuts are produced by smallholders and with an estimated 3 million rural poor in East Java alone (who are most likely to derive income from agriculture) the potential to reach large numbers of households is high.
- East Java is major peanut producing region in Indonesia. In the Tuban Regency, 65% of farmers' total income comes from peanuts.

What is the potential to increase income for producers?

There is a high potential to increase income through better agronomic practices, on-farm or community based processing and co-ordination of farmers and buyers.

- There is considerable scope for yield improvement in Indonesia. For example, in association with Garuda in 2007 farmers given seed and technical advice under contract were generating a gross margin up to IDR 3.5 million/ha. In the regular market, farmers were generating between IDR 755,000 and IDR 1.09 million.
- Premiums of up to IDR 15,000/kg are paid for bigger kernel size, which can be achieved with variety selection, input management and post-harvest grading.
- On farm processing can increase farm gate prices as shown in Table 17 below.

Table 17. The impact on farm gate prices from on-farm processing

Product Types	Moisture %	IRD/KG	Customer
Unshelled wet	50	1,500	Garuda
Unshelled wet	50	1,600	Other traders
Unshelled dried	20	3,750	Small collectors
Unshelled dried	15	4,250	Small collectors
Shelled dried	<12	6,500	Misc

Source: Nimmo-Bell and Company Ltd, 2007, IFC SADI Agri Sectors: Value Chain Analysis for the NTB Peanut Industry

Does the chain/commodity fit with the focus of Government programs and priorities?

Peanuts are not a priority of the Indonesian Government.

- Unlike rice and sugar, peanut producers have not been subsidized in Indonesia.
- Rather than a specific attention by the national or provincial programs, the support to the sector has come from external programs in association with Indonesian agencies.
- Indonesian policy makers have viewed contract farming favourably due to its potential benefits which include better access to markets, credit and technology.

How project-crowded is the sector? (To what extent are sector needs addressed by current donors?)

- ACIAR-SADI is a major player in the research arena particularly in NTB and NTT. Current research is focussing on new varieties, management practices and market development through contract growing initiatives. Partnerships have been developed between Australian and Indonesian research institutes.
- IFC has provided major input to these activities also.
- There appears to be limited other international funding programs operating in the sector.

What is the agro - ecological feasibility?

- Peanuts are currently grown in rotation with rice and in dry land areas in East Java, NTB and NTT.
- The agro-ecological requirements are similar for soybean, mungbean and to some extent maize.
- Opportunities are more apparent in East Java and NTB due to better soils and rainfall.
- NTT suffers from poorer soils and more variable rainfall. Peanut variety and management research may address some of the agronomy constraints in this region.

Sustainability (economic and environmental)

- Peanuts are a staple part of Indonesian cuisine and are consistently in high demand.
- In 2009 Indonesia had a negative trade balance, exporting 4,432 tonnes of peanuts in- shell and 236 tonnes shelled; imports of peanuts in-shell were 61,933 tonnes and 132,069 without shell.
- This indicates an unfulfilled local supply of raw peanuts in Indonesia, suggesting an opportunity for higher domestic economic returns if programs are implemented to increase production.
- Peanuts are relatively benign on the environment. When grown in rotation with rice there is the addition benefit of nitrogen fixation for the next crop rotation.
- Potential for inappropriate or excessive use of chemical weed and insect controls which is common across cropping systems.

External risk

- There is a moderate to high risk that the unequal relationship in the market chain will persist and farmers will not see the value in implementing modern techniques and varieties.
- The risk of buyer monopolisation may emerge unless more processors enter the market.
- Government policy is more heavily focussed towards other cash crops – a potential risk to further support.

- Aflatoxin contamination can be a health risk to consumers and downgrade the sale of production for farmers.

Structure of the chain

What is the potential for improving market access?

There is potential to reach higher value markets through improved processing on farm.

- Currently most farmers sell raw peanuts in shell to buyers for wet markets.
- Opportunities to increase knowledge of farmers in the benefits of drying, sorting and shelling to access higher value markets are good.
- Addressing the current production deficiencies which include the minimal use of inputs resulting in low yields may assist farmers to meet the high demand for high quality peanuts in Indonesia.

Is there potential for post-harvest productivity / value-added?

- Peanuts have a wide variety of uses and product transformations. Improvements to processing technology and infrastructure are required to increase processing capacity.
- Peanuts can be crushed for oil, processed into butter, confectionary, salted, and roasted.
- Waste meal and pods can be fed to animals as are the leaf and stem after harvest, creating an additional resource to farmers.

What is the scalability and transferability potential?

- A contract farming model implemented in previous SADI subprogram 2 projects (Garuda Food) has a high scalability/transferability potential for other areas and commodities if the right lead companies can be encouraged to participate.

Is there sufficient infrastructure availability?

- There is insufficient infrastructure in place for additional processing. Appropriate drying facilities are needed to ensure specific moisture content is achieved which will help address aflatoxin contamination and achieve higher market prices for raw peanuts.

6.3.14 Seaweed

Priority statement

Seaweed represents a **MEDIUM to HIGH** priority for pro poor development. It is of growing importance for the national economy as well as for the diversification and sustainability of coastal livelihoods, some of which are landless families with high rates of poverty. It has been prioritized by Government but does not appear to be the subject of extensive recent research. However it should be noted that at present there are only relatively small number of farmers involving in the sector (over 600 thousand farmers),and in addition to that the industry is still plagued by limited potential to increase production, price volatility, and physical access to markets and post-harvest application.

East Java, NTT and NTB are among the largest producer of seaweed in Indonesia. In total they contribute one third (33%) of national production of Indonesia (see Table 18).

Table 18. Seaweed production statistics for selected provinces in Indonesia

Basic Statistics	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Area of Production (ha)[2]	16,000	22,000	10,000	2.6 million
Volume of Production (tonnes) (2009)[2]	340,000	147,000	498,000	3 million
Yield (t/ha)	21	7	49	
Value of Production[1] (Rp 1,000) (2005)	1,500,000	785,000	-	18,000,000
People Employed[3]	230,000	98,000	330,000	2 million

Sources: [1] Ministry of Marine Affairs and Fisheries(MMAF) (2007)
[2] MMAF and JICA (2011). Indonesian Fisheries Book 2011
[3] Estimates based on national yield of and ownership of 50 lines of seaweed per farmers

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

There is medium potential to reach a large number of poor households

- It has been estimated that the Indonesian industry supports close to 2 million farmers, of which around 30% are from the NTT, NTB and East Java.
- Beyond the farm level, development could impact the trader, exporter and processor industries.

What is the potential to increase income for producers?

The potential is medium.

- Typically, seaweed aquaculture provides the sole source of cash income for coastal dwelling, landless households, who otherwise depend on subsistence farming, and/or (increasingly failing) artisanal fishing.
- The average annual income of seaweed farmers is far below the poverty line, IDR 7-8 million. This is mainly because they only have a small plot of seaweed and a limited season to grow it.
- Main opportunities for increasing smallholder incomes are improved co-ordination of farmer groups, value adding, production process improvement, processing and market development.
- The increasing complexity of the product processing and transformation along the value chain limits the options for value adding of the primary product beyond the production level.
- Current research is assessing the development of technology and means to produce seaweed fertiliser products from the water removed from the seaweed and using these seaweed fertilisers as alternative income streams for farmers and processors.
- Farmers are expected to receive benefit from improved post-harvest processing via reduced transportation costs and increased farm gate prices. By creating a fertiliser using the by-products of on-farm processing, farmers will benefit from an increase in cash income or increased productivity of their family farms.

Does the chain/commodity fit with the focus of Government programs and priorities?

The growth of the seaweed industry is a top priority for Indonesia.

- Since 2008, Indonesia ranks as the top producer of tropical seaweeds for extraction of food additives and stabilizers, and mostly all of Indonesia's production comes from the Eastern Islands (tonnes and %).
- The Government aims to produce 10 million tons of seaweed by 2015, becoming the largest producer in the world. In order to promote expansion, the government has facilitated the development of seaweed to 2.6 million hectares in 2010.
- In order to coordinate the seaweed industry development in Indonesia, it was agreed in 2010 that 5 ministries and 1 body (MMAF, MoT, MoI, Ministry of Coop and SME Development, Ministry for Acceleration of Disadvantage Areas and Coordinating Body for Capital Investment) would collaborate to accelerate socio-economic development. The collaboration is led by Ministry for Acceleration of Development Disadvantage Areas.
- The government of NTB has launched the PIJAR " Sapi, jagung ,rumput laut – cattle, maize and seaweed" program, which aims to make the province a key source of seaweed and to increase seaweed production from 220,000 tons in 2010 to one million tons by 2013.
- NTT, East Java and NTB are ranked no 4, 6 and 7 respectively in the top seaweed production centres in Indonesia. The districts focus of each province as follows: NTT: Alor, Kupang and Sabu. NTB: Lombok Timur, Sumbawa and Lombok Barat, and East Java: Sumenep, Situbondo, Banyuwangi.

How project-crowded is the sector? (To what extent are sector needs addressed by current donors?)

- There are six donor projects that include the seaweed sector as one of their areas of intervention.
- CIDA is the only donor that is currently active, but in the past GTZ, DFAT, IFC, ACIAR and COREMAP provide significant input to the sector. Most of the projects are not exclusively targeting seaweed farming but tackle issues such as SME clusters, promotion of cross-border value links, business development, and post-harvest processing.

What is the agro - ecological feasibility?

Medium

- The marine environment is Indonesia is among the most productive in the world for seaweed growing due to its currents and tropical conditions, allowing Indonesia to become the world`s biggest dried seaweed exporter with its annual exports reaching 145,000 tonnes, or about 50% of the tropical world's total exports of 290,000 tonnes.
- However there has been recent productivity declines from slower growth rates, and increased incidence of the bacterial 'ice-ice' disease.

Sustainability (economic and environmental)

The sustainability is high, both economically and environmentally.

- Seaweed is a rapidly expanding sector and provides the biggest aquaculture output. There is a growing world demand for carrageenan and Indonesia is well positioned as a market leader to increase production and exports.

- At farmer level, sustainability of the business is vulnerable to fluctuating prices and quality of production, however due to low input costs and compatibility with other economic activities seaweed farming is a viable source of additional income.
- Farm and community level processing sector development provides the opportunity to turn aby-product into valuable resource increasing profitability and reducing environmental impacts.
- Seaweed farming has far fewer environmental impacts than other mariculture. However it can have some impacts on sedimentation and water movement or alteration to the natural habitat. Sea grass beds can be negatively impacted by the change in light and water quality due to the introduction of seaweed on the water surface.

External risk

These are considered high.

- The long-term success of seaweed farming is directly linked to the fluctuation of market prices, and their volatility presents the biggest risk for the development of the sector.
- The introduction of the activity can be quickly compromised if prices drop. This was clearly demonstrated in 2008 by the sharp fall of prices – prices of IDR 5,000 rocketed to IDR 18,000 and then dropped to under IRD 10,000, resulting in a drop in production in Indonesia.
- The lack of seaweed nursery grounds in farming areas pose a medium to long term risk to the industry.
- ACIAR sponsored scoping missions found an alarming, widespread drop in productivity in the aquaculture of these seaweeds in Indonesia, mainly due to three common characteristics:
  1) slower growth rates,
  2) increased incidence of the bacterial (Vibrio sp.) disease 'ice-ice', and
  3) increased epiphyte (Neosiphoniaapiculata) infestations.
- The changing of sea water temperatures and current patterns as well as the sea pollution pose additional risk to seaweed farming.

Structure of the chain

What is the potential for improving market access?

Limited

- The market can often be described as oligopsony with farmers at village level having to sell dry seaweed directly to only a few buyers (collectors or middlemen).
- Incentives and market transparency are important but lacking. The average moisture content of dried seaweed produced by the farmers is between 38 to 45% and the dirt content is between 5 to 15%. This is far below the National standard that is set at 38% for moisture content and 5% for dirt content. Unfortunately at the farm level generally producers get same price regardless of the quality, consequently the producers are not interested in improving seaweed quality.
- Farmers' market access can be improved through change in power relations along the chain involving the review of farmer groups, organizational design, chain governance and power relationships.

- Market access can be improved if production is clustered and coastal road accesses, as well as drying and storage infrastructure, are improved.

Is there potential for post-harvest productivity value-added?

There is limited potential at the farm gate level.

- The current market chain emphasizes export of raw seaweed. It is based on a network of producers, collectors and traders with the majority of the seaweed being exported prior to value-adding transformation.
- However, the new government policy for the development of the sub-sector is aiming to create the conditions for value to be added close to Indonesian sources. Currently, Indonesia has 34 seaweed processing factories of which only 20 are operational, and local seaweed processors have a capacity of about 120,000 tons a year.
- Farm and community level processing sector development provides the opportunity to turn a waste product into valuable resources such as fertilizers.

What is the scalability and transferability potential?

Medium

- There are 15 Provinces in Indonesia (including NTT, NTB and East Java) that are currently involved in seaweed production thus indicating the scalability potential of the research.
- Findings are transferable to other marine fishery commodities.
- Both the scalability and transferability are limited by the availability of infrastructure, access to finance and the recent decline of industry growth that will limit the capacity of early adopters.

Is there sufficient infrastructure availability?

- There is limited availability of suitable infrastructure such as good drying and storage facilities, and road access from remote production areas to the network of bigger traders and/or exporters.

6.3.15 Sweet Potato

Priority statement

The sweet potato sector is a **LOW - MEDIUM** priority for pro poor development. Growth of production in NTT and the cultural significance of the crop and links to pig farming present opportunities that could be further investigated.

Traditionally, sweet potato has been a staple food in the eastern part of the country (Papua Province especially) and an important food security crop in the densely populated island of Java. It is a widespread crop, as sweet potato and pigs are connected to all the Papuan traditional events such as marriages, funerals, and the resolution of conflicts. In local culture certain varieties are the most important human food.

East Java has the highest productivity of the three provinces with 15.3 t/ha (see Table 19). This is higher than the national average of 12.2 t/ha. In 2011 East Java produced 219,324 tonnes of sweet potato. By comparison, NTT produced 125,048 tonnes and NTB only 12,021 tonnes.

A comparison between East Java, NTB and NTT shows that East Java and NTT have similar amount of sweet potato cultivation areas, while NTB has dedicated just over 1,000 ha for sweet potato production, making it by far the smallest producer alongside West Papua.

Table 19. Sweet potato production statistics for selected provinces in Indonesia

Basic Statistics	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Area of Production (ha)	14,340	1,032	15,160	177,605
Volume of Production (tonnes)	219,324	12,021	125,048	2,172,437
Yield (t/ha)	15.29	11.65	8.25	12.23
Source: Badan Pusat Statistik 2011				

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

- A finite number of producers is difficult to identify. However given its growth characteristics (i.e. grown by poor households), an intervention in sweet potato will reach a larger number of rural poor households in EJ, NTT and NTB.
- As sweet potato is an important traditional food crop, especially for the rural poor on the Island of Java, many farmers grow it for their own consumption.

What is the potential to increase income?

- There is limited potential. While sweet potato is a major root crop it is not processed on a significant scale. Besides some snack and street food production, and some sales to larger scale sauce producers, the bulk of the crop is consumed fresh. Per capita fresh consumption generally declines as income and urbanization increases.
- A key challenge facing sweet potato is to develop new uses for the crop, especially in starch and flour processing. The trend toward greater utilization of sweet potato for agro-processing is slowing taking place. A critical requirement is new and improved production technology to raise yields and reduce unit production costs in order to make sweet potato a competitive source of raw material in agro-processing.
- Traditionally sweet potato is closely linked with pig farming, so any growth in this sector has some potential to deliver positive economic gains, especially for poor smallholder producers.

Does the chain/commodity fit with the focus of Government programs and priorities?

No. Sweet potato is not considered a commercially important species.

Having said that, there is a National Sweet Potato Program and a number of donor interventions exist that mainly focus on improving the varieties produced for home consumption.

How project-crowded is the sector?

There are a number of research institutions working in the sweet potato sector, such as:

- ACIAR, developing improvements to the sweet potato and pig production systems in the highlands of Papua;
- UPWARD (Users Perspective with Agricultural Research and Development) part of the (CIP) International Potato Centre network, who have identified four major sweet potato production systems; and
- The Central Research Institute for Food Crop (CRIFC) and the regional office of the International Potato Centre for East, Southeast Asia and the Pacific (CIP-ESEAP), who has released new varieties of sweet potato.

What is the agro - ecological feasibility?

- High. Sweet potato production in the Indonesian and Melanesian island groups dates back to pre-Colombian times.
- Indonesia possesses a rich set of indigenous sweet potato genetic material which is highly suited to the soil and climatic conditions.

Sustainability (economic and environmental)

Economic risks are relatively high because:

- Consumption of fresh roots tends to decline as per capita income rises and consumers will switch to more preferred foods.
- Future research must investigate the feasibility of improving quality and lowering unit cost, or channelling output into emerging specialist markets such as the starch market for upstream industries.

Environmental risks are low:

- Sweet potato is a crop that does not present any specific major environmental threats or concerns.
- The main negative impact is associated with the unsustainable land preparation practices of slash-and-burn often used by farmers growing crops for household food security.

External risk

There are a number of moderate risks associated with the production of sweet potato, including:

- As a source of starch sweet potato it cannot compete with cassava;
- Low multiplication rates – it takes longer to produce an adequate supply of the crop's planting material than that of cereals;
- Low status - sweet potato carries the stigma of being the "poor people's food" and as such, consumption is low; and
- There is no stable market for increased production.

Structure of the chain

Is there potential for post-harvest productivity value-added?

- There is limited potential linked to transformation of the product into starches and flours for food and non-food uses.
- Expanding sweet potato for industrial uses must be backed up by innovative postharvest technologies.

- Physicochemical properties of sweet potato significantly differ among varieties. Therefore, suitable varieties for each processed product are needed.
- There are two technical concerns that need to be addressed before sweet potato flour processing can be considered feasible:
  (a) the browning effect during processing, and
  (b) the unexpectedly low conversion rate.

What is the potential for improving market access?

- There is no immediate change in market prospects for sweet potato under current use and technology conditions. The demand for sweet potato will increase considerably if it can substitute for other raw materials, especially cassava, in the sugar, fructose, and maltose industries.

What is the scalability and transferability potential?

- Sweet potato production has not shown significant growth in the last decade and the transferability potential of lessons learned is limited to bulk perishable commodities of similar nature.

Is there sufficient infrastructure availability?

- No. Processing infrastructure does exist.
- The dispersed location of production and the natural characteristics of the product cause transportation costs to be a major component of the sweet potato price, thus linkages could be improved.

6.3.16 Vegetables

Priority statement

The sector offers a **MEDIUM to HIGH** potential for pro poor development. Vegetables produce higher seasonal returns than food crops such as maize and rice. Horticulture has led agricultural growth in revenue share (albeit from a low base of 7.3%) by 12.4% per year from 1999-2005. By way of comparison, food crops percentage share of agricultural revenue declined by nearly 10% over the same period, down to 51.8%.

There are major opportunities in EJ for increasing productivity across a large number of farmers. Greater challenges exist in NTT and NTB due to supply chain inefficiencies and inadequate cold chain infrastructure.

Table 20 below summarises vegetable production across the three project provinces. East Java produces a significant proportion of Indonesia's vegetables while NTT and NTB produce comparatively little but can leverage other advantages.

Table 20. Summary of production of select key vegetables in selected provinces in Indonesia

Cabbage	East Java	West Nusa Tengarra	East Nusa Tengarra	Indonesia
Area (Ha)	9,993	418	154	109,634
Production (tonnes)	181,344	9,726	854	1,048,934
Yield (t/Ha)	18.2	23.3	5.6	9.6
% of national production	17.3%	0.9%	0.08%	
Chilli	**East Java**	**West Nusa Tengarra**	**East Nusa Tengarra**	**Indonesia**
Area (Ha)	57,706	4,687	1,477	237,105
Production (tonnes)	213,674	18,870	5,968	1,328,864
Yield (t/Ha)	3.7	4.0	4.0	5.6
% of national production	16.1%	1.4%	0.45%	
Potato	**East Java**	**West Nusa Tengarra**	**East Nusa Tengarra**	**Indonesia**
Area (Ha)	8,561	367	129	66,531
Production (tonnes)	115,423	5,130	542	1,060,805
Yield (t/Ha)	13.5	14.0	4.2	15.9
% of national production	10.9%	0.5%	0.05%	
Shallot	**East Java**	**West Nusa Tengarra**	**East Nusa Tengarra**	**Indonesia**
Area (Ha)	26,507	10,159	923	67,531
Production (tonnes)	203,739	104,324	3,879	1,385,044
Yield (t/Ha)	7.69	10.3	4.2	20.5
% of national production	14.7%	7.5%	0.28%	
Tomato	**East Java**	**West Nusa Tengarra**	**East Nusa Tengarra**	**Indonesia**
Area (Ha)	4,439	1,335	870	61,154
Production (tonnes)	56,342	25,639	6,151	891,616
Yield (t/Ha)	12.69	19.2	7.1	14.6
% of national production	6.3%	2.9%	0.7%	

Source: Badan Pusat Statistik 2011

The Socio-Economic Review touches on other vegetables produced within the study regions.

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

- Yes. While no specific data for EJ, NTB and NTT exists, the agriculture sector accounts for up to 43% of total employment. Of this the food crop subsector employed about 27 million people, in the early 1990s. Many farmers in East Java and NTB grow vegetables as a part of a rotation with rice. The majority of the cropping is done in the dry season.
- The pattern of Indonesian agricultural production has increasingly shifted away from food crops. with a decline in revenue share of agricultural production of 9% from 1999 to 2005) still dominant share of agricultural production at 52%) and particularly towards horticulture and estate crop production. The bulk of agricultural production in

Indonesia remains in food crops. Nonetheless, the bulk of agricultural production in Indonesia remains in food crops but their % revenue share has declined by 10% of the past 20 years.

What is the potential to increase income for producers?

- The supermarket trade consistently provides farmers with the highest returns when compared to selling through collectors and traders.
- By way of example, there is potential to increase per capita smallholder household income by around 80% by selling in modern chilli chains compared to traditional markets. Typical issues include:
  1. Low productivity;
  2. Benefiting from opportunities for value adding on the farm;
  3. No post-harvest or cold chain management;
  4. Market development opportunities and;
  5. Weak farmer bargaining power
- Prices for most vegetables show a higher seasonal variation compared to rice. Vegetables are expensive to produce but if input costs are managed the returns are favorable compared to food crops.

Does the chain/commodity fit with the focus of Government programs and priorities?

Yes, horticulture is a high priority for the Indonesian Government in terms of increasing productivity and achieving self-sufficiency.

- The 2010 horticulture bill placed greater restrictions on importation and applied favourable status to domestic production of vegetables.
- Trade and market liberalisation has encouraged diversification into higher-value export crops and increased government spending on agriculture services, irrigation, and research on specific high-value crops.

How project-crowded is the sector? (To what extent are sector needs addressed by the current donors?)

- Not excessively crowded. However a number of value chain studies have been recently completed looking at specific commodities in the vegetable sector such as chillies.
- ACIAR has multiple projects aimed at plant protection and enhancement of production with improved varieties.

What is the agro - ecological feasibility?

- Vegetables are well suited to being grown in rotation with staple crops, but management of water is a key issue in the dry season.
- Highly feasible if water is managed and provided in the dry-season.
- Indonesia has a wide geographic potential for vegetable production and generally benefits from higher altitudes than many other countries in the region.
- European and subtropical vegetables can be grown in areas with elevation particularly in East Java.
- However vegetables can be grown in three zones in Indonesia including highlands, medium altitudes and; lowland rain-fed areas.

Sustainability (economic and environmental)

- Economic sustainability is moderate to high because demand is growing in terms of consumption, while environmental sustainability is determined by the management of inputs.
- Economic potential is tempered by the continued high input costs of many commodities within the sector.
- High use of herbicide and pesticide chemicals is a major concern in the sector in terms of human health but also in terms of chemical residues polluting water sources.
- The vegetable sector also is a major user of inorganic fertilisers which has well known environmental problems in terms of water pollution.

External risks

- There is higher risk in vegetable production than staple crops due to higher input costs and increased management required during the growing season, but returns are also much higher.
- There is a perceived risk by small holder farmers. Food security issues are high for many farmers in NTB and NTT due to lower rainfall and the extended dry season.
- The variability in vegetable production is considered higher than staples such as rice or maize. Yield and area data can vary significantly from year to year which in turn leads to price instability and uncertainty by farmers.

Structure of the chain

Is there potential for post-harvest productivity/value-added?

- There is a high potential for post-harvest improvements. Reducing post-harvest losses, targeting production quality to consumer demand (organic or niche markets), supplying directly to supermarket chains are examples of opportunities to increase profitability for producers.
- Vegetables offer a wide range of product transformation opportunities. Processing is currently under capacity in Indonesia, with many processors importing dried vegetables for food processing to make up for lack of supply at certain times of year eg. Chillies.
- With regards to potatoes, there is an opportunity to make available good quality seed stock which could be further processed to saleable frozen French Fries.

What is the potential for improving market access?

- Vegetables are in high demand domestically and internationally. Improvements in post-harvest technologies to cater towards the rapidly expanding supermarket sector are a major opportunity for vegetable growers.

What is the scalability and transferability potential?

- Moderate to high potential. The vegetable sector is concentrated in Java with East Java a major supplier of chillies and shallots in particular.
- NTB and NTT have less productive capacity; however the production techniques and technology such as irrigation are scalable to these areas given the correct social context. e.g. lessons learned from embung constructions (water storage capture of wet season runoff).

Is there sufficient infrastructure availability?

- No. Cold storage infrastructure is a serious limitation to the sector as is other post-harvest facilities such as sorting and grading.
- Distance and low quality roads and ports are deficiencies that afflict many sectors including that of vegetables.

6.4 Assessing the commodity fit

Once the weightings for all the sub-criteria were determined and agreed, a matrix (see Table 21) for ranking the commodities against each sub-criterion was constructed as per the M4P methodology.

Each criteria was given a numeric score from 1 to 5 that represents the extent to which the commodity satisfies the criteria question, where 5 represents maximum compliance with the criteria question and 1 represents a minimum compliance (except in two instances when the score is reverse).

Scale: 1 - low potential;
2 – some potential;
3 – average potential;
4 - high potential;
5 - maximum potential.

Descriptions and examples of the scoring were developed to guide the project team and assist the project reference group understand why a particular commodity was scored a particular way.

6.4.1 Poverty alleviation and sustainability of the economic activity

1. Is there potential to reach large numbers of poor households in production and post-production?

Description: An indication of how common a particular production activity is, and if possible, an indication of the number of people involved, as a measure of the potential impact of the development of the production or post-production activities.

Score: 1 – Indicates low potential 5 – Indicates high potential

2. What is the potential to sustainably increase income for producers?

Description: An assessment of the opportunities that exist for producers to improve their net profits in a sustainable way.

Score: 1 - Indicates low potential 5 - Indicates high potential

3. Does the chain/commodity fit with the focus of Government programs and priorities?

Description: Whether the commodities fit into the national and regional strategies for product promotion, and thus whether there are any government resources committed to promotion of the product.

Score: 1 - Has not been identified as a priority by government
5 - Has been identified as development priority by government

4. How project-crowded is the sector? To what extent are sector needs addressed by current donors?

Description: A review of the number of current donor funded projects and agreements that support the development of the specific sector in order to assess the extent to which sector needs have been addressed by external interventions.

Score: 1 - Sector needs have been addressed
5 - Sector needs have not been addressed

5. What is the agro-ecological feasibility?

Description: The extent to which the specific commodity is suited to the biophysical constraints of East Java, NTT and NTB.

Score: 1 - Not environmentally suitable
5 - Environmentally suitable

6. Is it environmentally sustainable?

Description: The potential negative/positive environmental impacts that could impair/benefit production and further value-adding prospects.

Score: 1 - Strong negative environmental impacts
5 - Neutral or positive environmental impacts

7. External risks

Description: The major economic, social or political risks associated with the particular commodity chain and the level of threat they pose to further development.

Score: 1 - High levels of overall external risk
5 - Low levels of overall external risk

6.4.2 Structure of the value chain

1. Is there potential for post-harvest productivity/ value-added?

Description: Identifies the main opportunities for value-adding and indicates if such opportunities exist. The focus is on the profitability and stability of profit along the value chain. The amount of mark-up or value added along the chain has to be substantial.

Score: 1 - There are not clear or feasible opportunities for value-adding
5 - Opportunities exist for value adding

2. What is the potential for improving market access?

Description: Identifies the severity of current market barriers that need to be overcome to ensure market access.

Score: 1 - Severe market barriers exist
5 - Market barriers of lesser complexity (easier to overcome) exist

3. What is the scalability and transferability potential?

Description: To what extent can the outcomes of the pilot study be up-scaled to the national level and are the lessons learned transferable to other sectors?

Score: 1 - Lessons learned are not easily up-scalable or transferable
5 - Lessons learned are easily up-scaled and transferred

4. Is there sufficient infrastructure availability?

Description: Identifies the current infrastructure shortcomings that impact the value chain.

Score: 1 - Severe shortcomings in infrastructure

5 - Sufficient infrastructure available

Table 21. Commodity scoring matrix

Criteria		Fishery	Seaweed	Mango	Cashew	Coffee	Peanut	Cocoa	Banana	Dairy	Maize	Beef Cattle	Cassava	Sweet potato	Soybean / Mungbean	NTFP	Vegetables
Poverty alleviation and sustainability of the economic activity	**60%**																
1. Is there potential to reach large numbers of poor households in production and post-production?	30%	3	4	5	3	3	4	3	4	2	5	5	3	4	4	4	4
2. What is the potential to sustainably increase income for producers?	30%	3	2	4	3	2	4	3	2	3	3	5	2	2	3	2	4
3. Does the chain/commodity fit with the focus of Government programs and priorities?	10%	5	5	4	2	3	2	3	3	3	5	5	4	2	4	1	4
4. How project-crowded is the sector? To what extent are sector needs addressed by current donors?	5%	3	4	3	2	1	3	2	4	2	4	4	5	3	3	4	3
5. What is the agro-ecological feasibility?	10%	5	5	4	5	3	3	3	5	2	4	4	4	5	3	4	3
6. Is it environmentally sustainable?	10%	2	5	5	5	2	4	4	2	4	3	3	2	4	4	3	3
7. External risks	5%	2	2	3	3	2	3	2	2	2	4	4	3	2	3	2	3
Criteria		**Fishery**	**Seaweed**	**Mango**	**Cashew**	**Coffee**	**Peanut**	**Cocoa**	**Banana**	**Dairy**	**Maize**	**Beef Cattle**	**Cassava**	**Sweet potato**	**Soybean / Mungbean**	**NTFP**	**Vegetables**
Structure of the value chain	**40%**																
1. Is there potential for post-harvest productivity/ value-added?	30%	4	2	4	2	3	4	2	2	3	3	4	3	2	3	4	4
2. What is the potential for improving market access?	30%	2	4	4	4	4	4	3	3	3	4	3	2	1	3	2	4
3. What is the scalability and transferability potential?	25%	3	4	4	1	4	4	3	3	2	4	4	4	2	4	3	4
4. Is there sufficient infrastructure availability?	15%	2	2	2	4	2	2	3	2	2	3	3	3	3	2	4	2

6.5 Commodity ranking by criteria

Figures 1 to 11 represent the final ranking of commodities by sub-criteria.

6.5.1 Poverty alleviation and sustainability of the economic activity

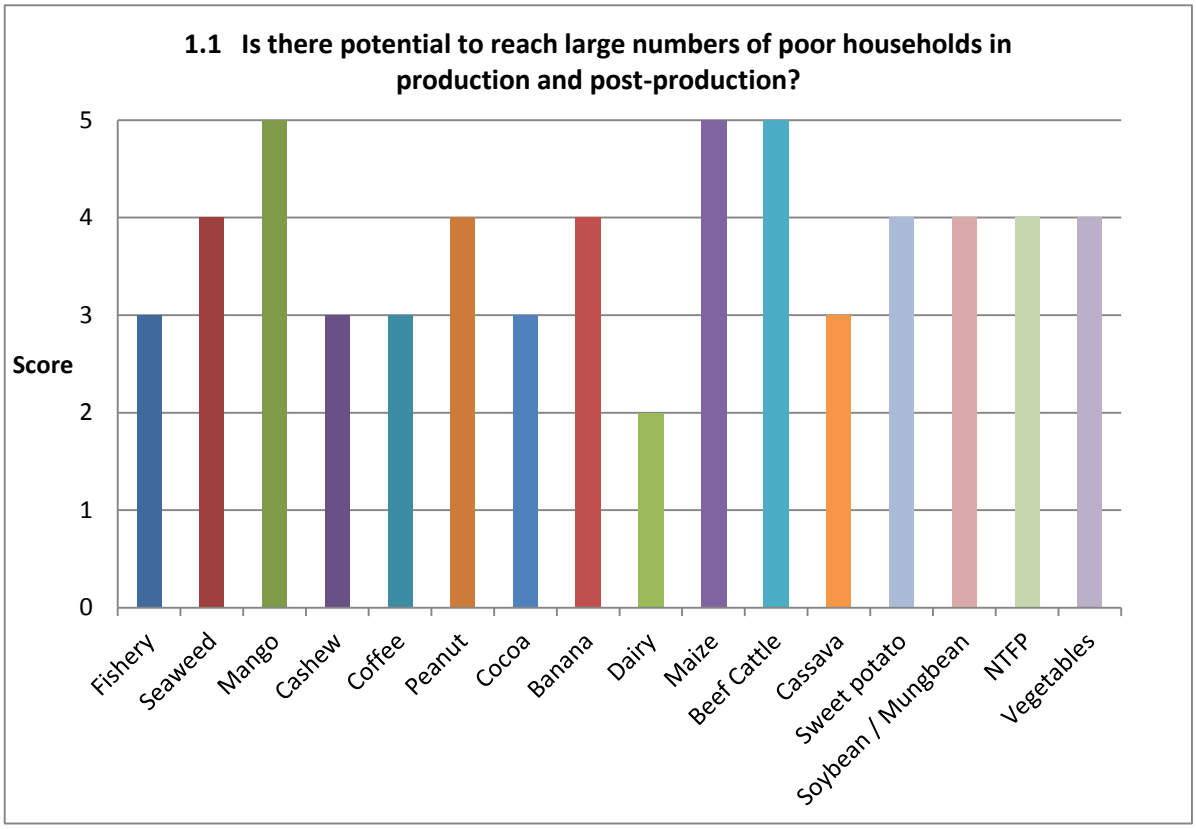


Figure 1. Commodity ranking for the potential to reach large numbers of poor households in production and post-production

Mango, beef and maize all scored high against this criterion due to the large number (> 1 million) of producers in the study provinces. In contrast, dairy scored low with estimated < 150,000 producers in the selected provinces.

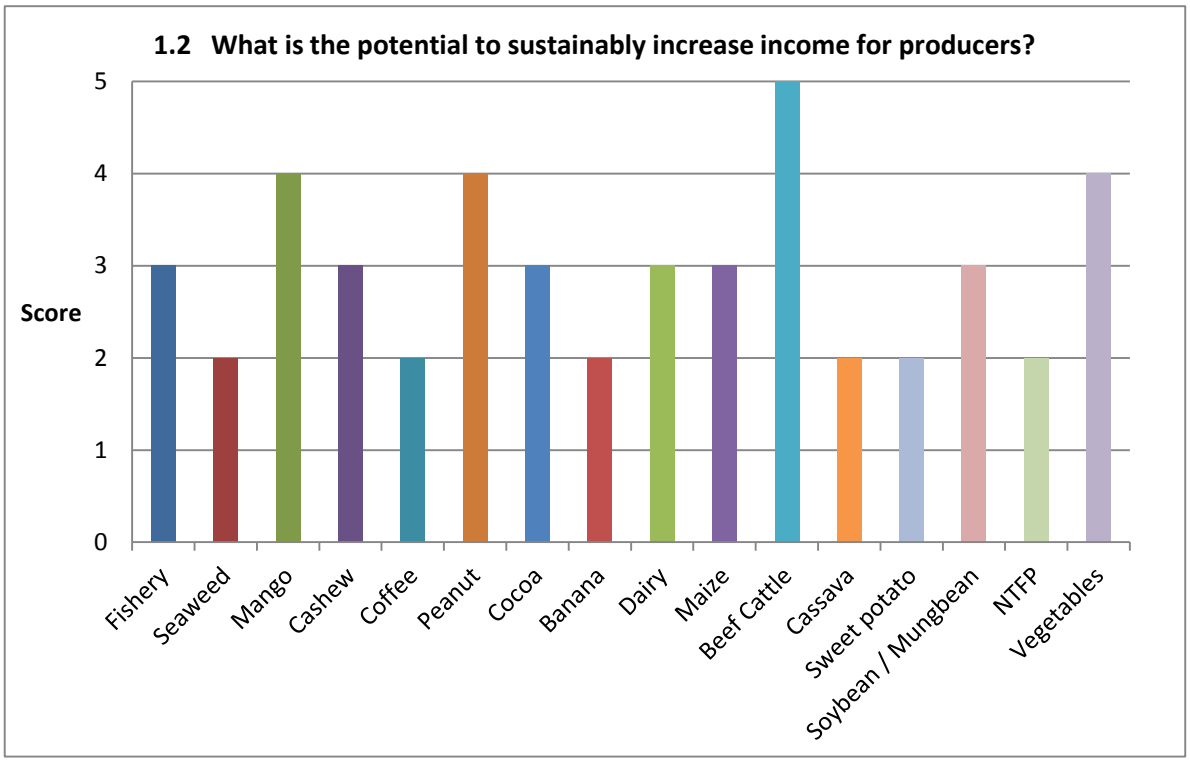


Figure 2. Commodity ranking for the potential to sustainably increase income for producers

Commodities such as beef and mango scored high against this criterion due to the high potential to improve productivity through better management practices (beef) and the improved connectivity to the marketplace for producers with the emerging supermarket sector.

Commodities that did not score so well against this criterion were considered to offer limited potential, for example improvements in the cassava chain are mainly linked to access to improved varieties for ethanol, and as such the chain offers limited processing improvements for food. Similarly, the potential for coffee is in niche marketing only, thereby limiting mainstream opportunities to increase income.

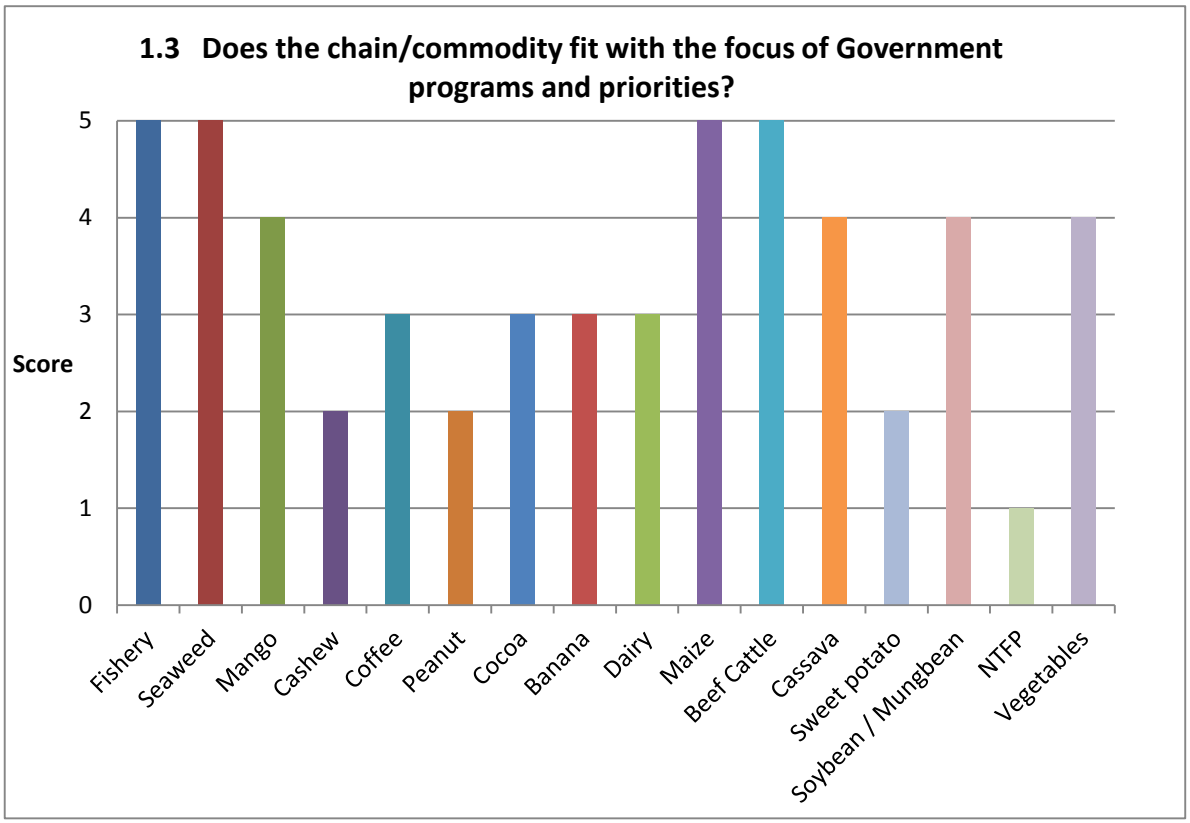


Figure 3. Commodity ranking for how well the commodity fits with the focus of Government programs and priorities

Commodities such as fisheries, seaweed, maize and beef all scored well against this criterion due to their identification as important economic sectors in development strategies at both national and provincial level. Sectors like NTFP and sweet potato scored much lower, representing their strategic lack of importance nationally and in most of the provinces in the study area.

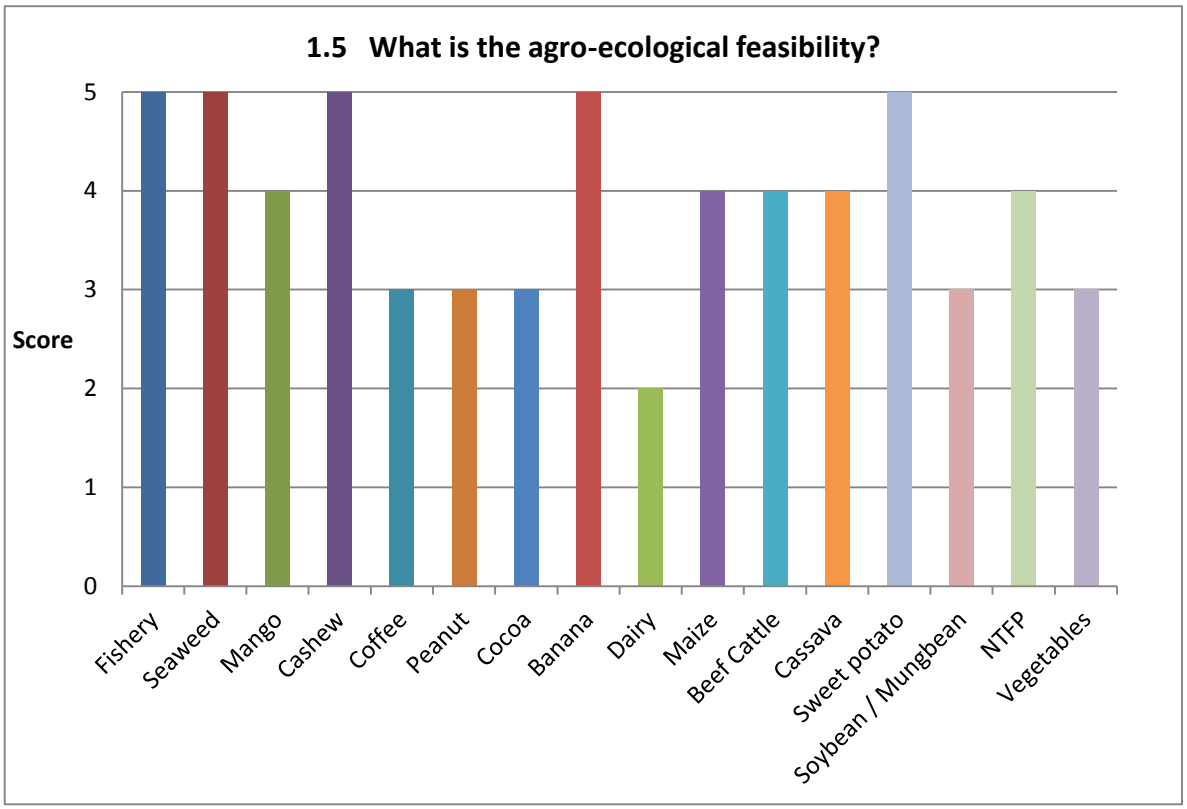


Figure 4. Commodity ranking for how project crowded the sector is and whether the sector's needs are already being addressed

Given Indonesia's archipelago nature, there is an abundance of waters, making fisheries and seaweed highly agro ecologically suitable to the region. Cashews scored well against this criterion due to its suitability to the climate in Eastern Indonesia, as did bananas given their suitability to the tropical climate.

Dairy, on the other hand, did not score well against this criterion due to the scarcity of land at suitable elevations for dairying.

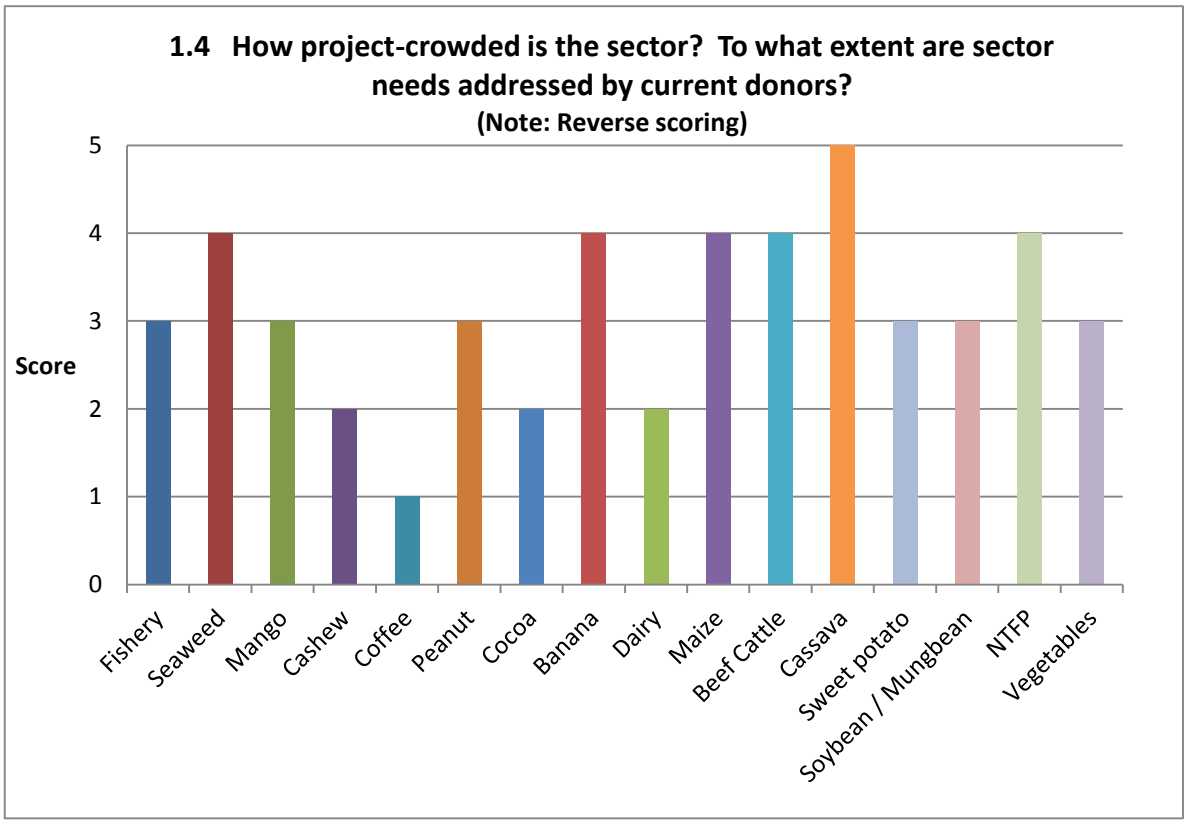


Figure 5. Commodity ranking for its agro-ecological feasibility

Coffee's low score against this criterion is a result of the existence of an extensive number of donor projects working on different sector needs. Cashew and cocoa are also well serviced from a donor perspective.

In contrast, cassava's high score reflects the lack of project work in the sector, where needs tend to be serviced by private sector investment.

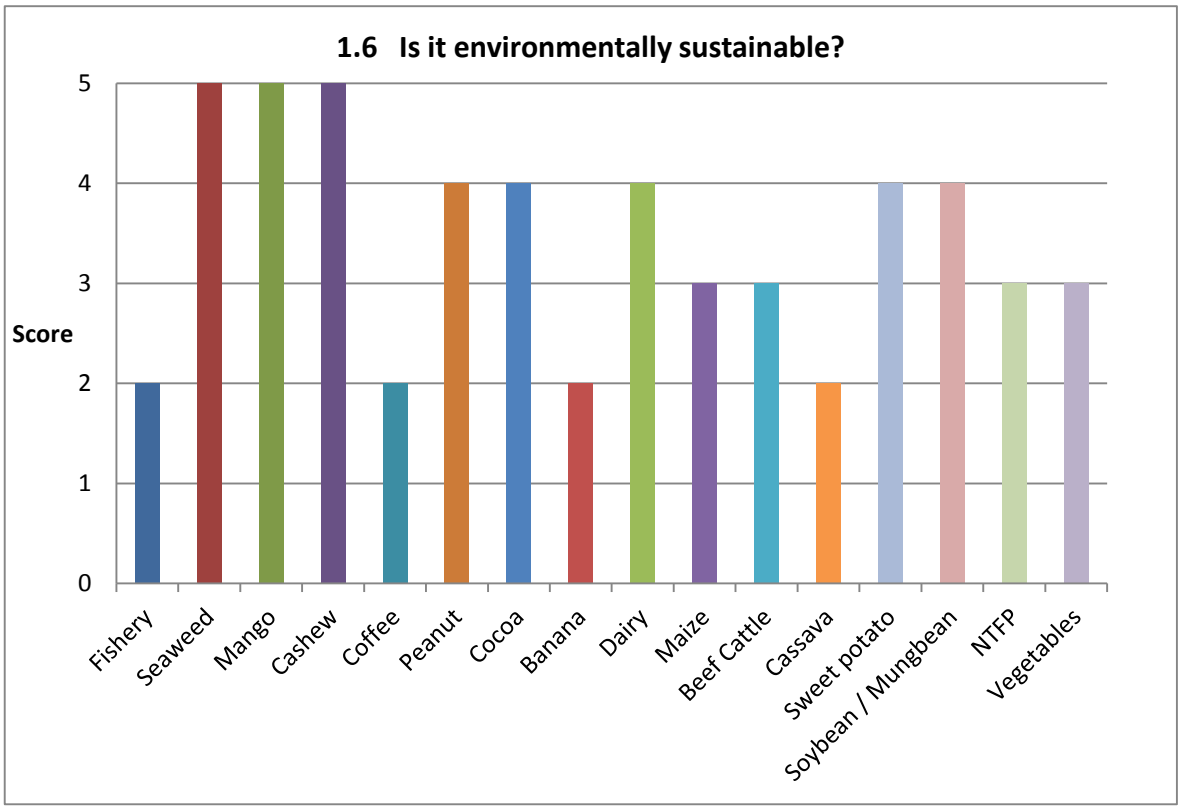


Figure 6. Commodity ranking for environmental sustainability

Tree crops such as mango and cashew scored well against this criterion due to their deep rooted, perennial nature. Annual cropping presents greater potential for erosion. Perennial, deep rooted trees offer a more sustainable cropping system in sloping lands with less predictable wet/dry seasons.

The fisheries sector has not scored well against this criterion largely due to the fact that the catch has been declining of the past 10 years and there is weak monitoring and control over the fishing effort. Catch is already at 80% of sustainable yield, indicating there is little room for a sustainable increase.

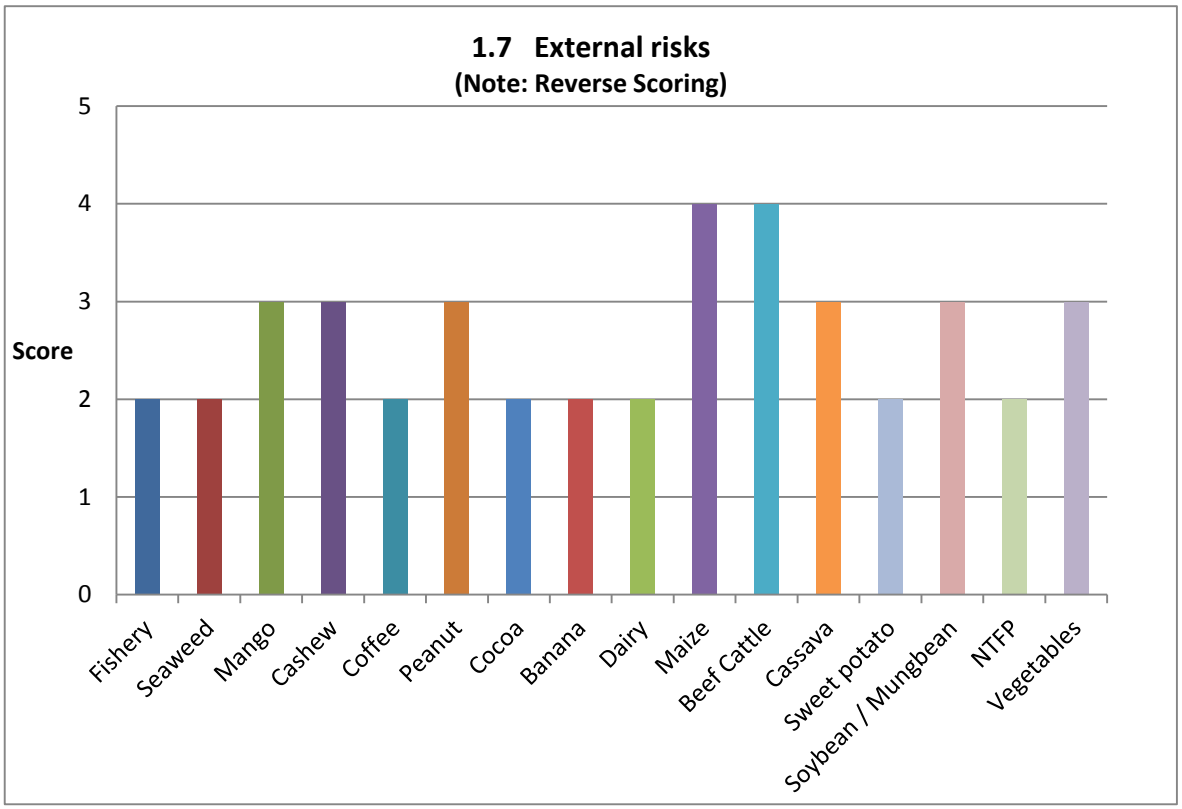


Figure 7. Commodity ranking for external risk

Maize and beef scored highest in this criterion. Maize does face a risk of high dependence on rainfall in the absence of irrigation infrastructure, and the beef sector is considered to face a low to moderate risk associated with changes to trade policies and the regulatory and institutional environment. However, these were not considered high or insurmountable.

In contrast, dairy was considered to face a moderate to high risk to productivity due to limited availability of feed, cocoa and banana face production constraints due to pest and diseases and coffee faces a competitive international market with high-quality demands.

6.5.2 Structure of the value chain

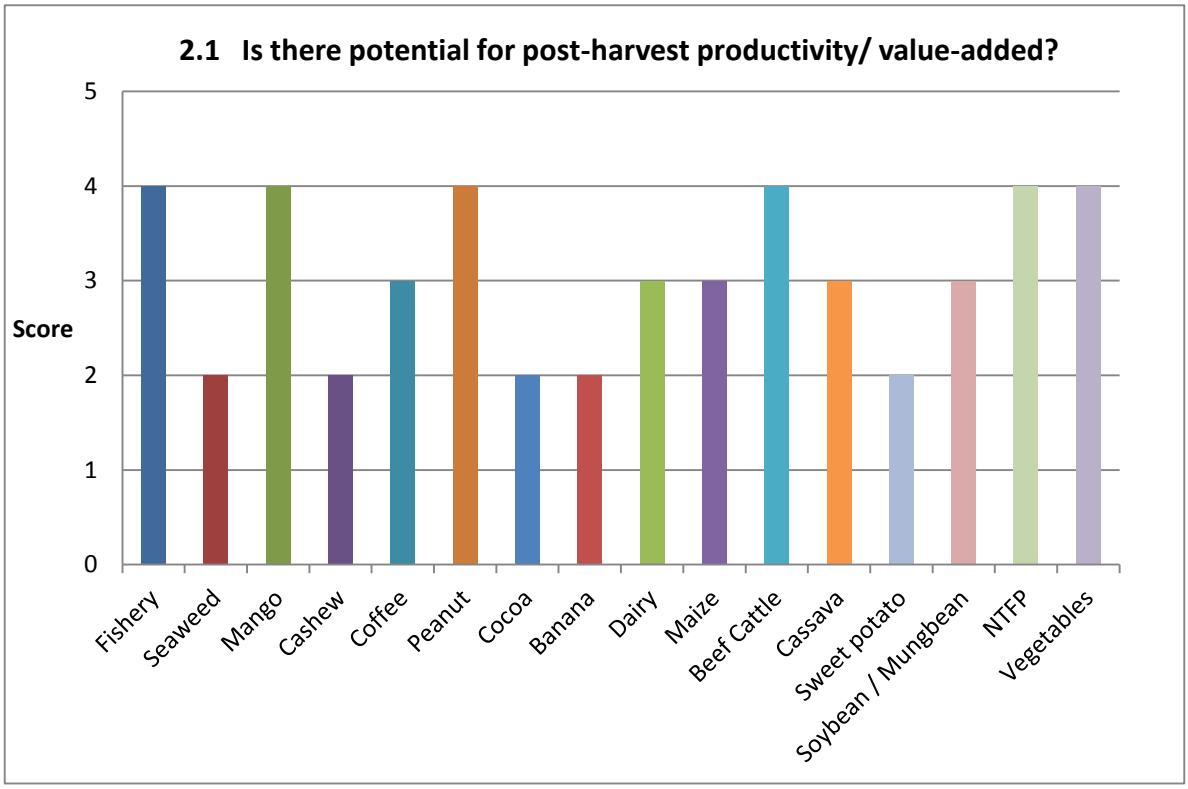


Figure 8. Commodity ranking for potential for post-harvest productivity / value added

Commodities such as mango and peanut offer greater potential for post-harvest value add. Mango offers the potential for processing into pulp, dry-fruit, juice etc. that can be done locally and small-scale, and there are similarly a wide variety of product transformations potentially available at the small-scale for peanut.

Products such as cocoa and cashew are largely exported prior to any processing and offer limited opportunities.

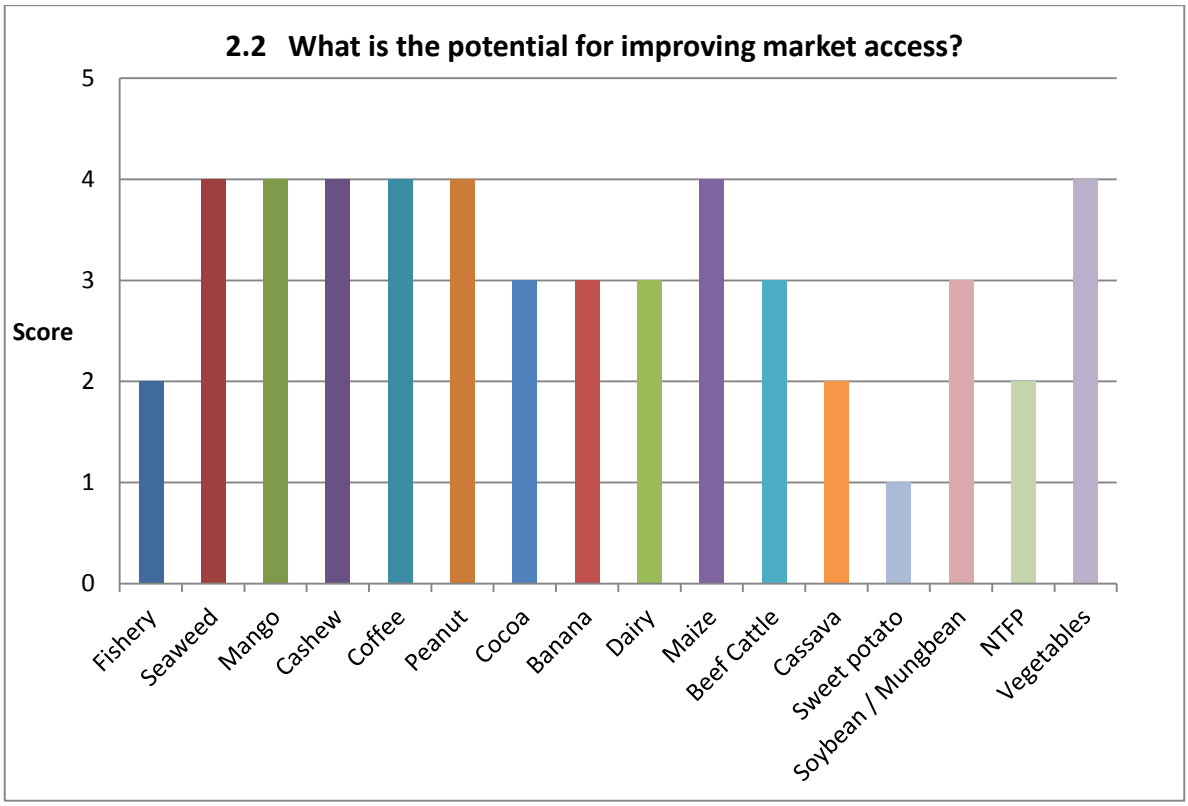


Figure 9. Commodity ranking for potential for improving market access

Commodities such as mango and vegetables offer good potential due to the rapidly expanding supermarket sector. Maize offers moderate potential as there are multiple markets – human and animal food, and bio-fuels.

Comparatively, there are no immediate prospects for improved market access for sweet potato.

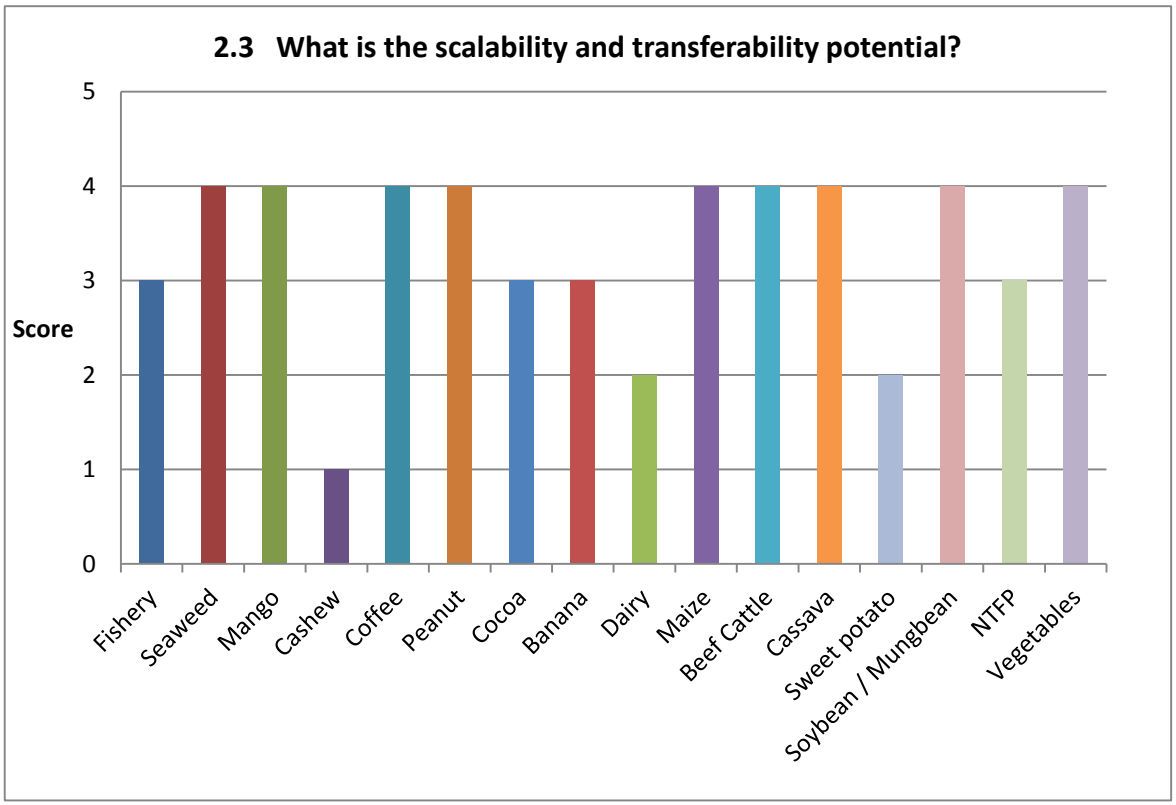


Figure 10. Commodity ranking for scalability and transferability potential

Commodities such as beef and maize are grown widely across the study provinces and other areas scored well against this criterion.

Dairy does not score so well due to it not widely dispersed in two of the three provinces in question. Sweet potato also does not score well due to the shrinking production base. It does offer some transferability to other similar bulk perishable commodities.

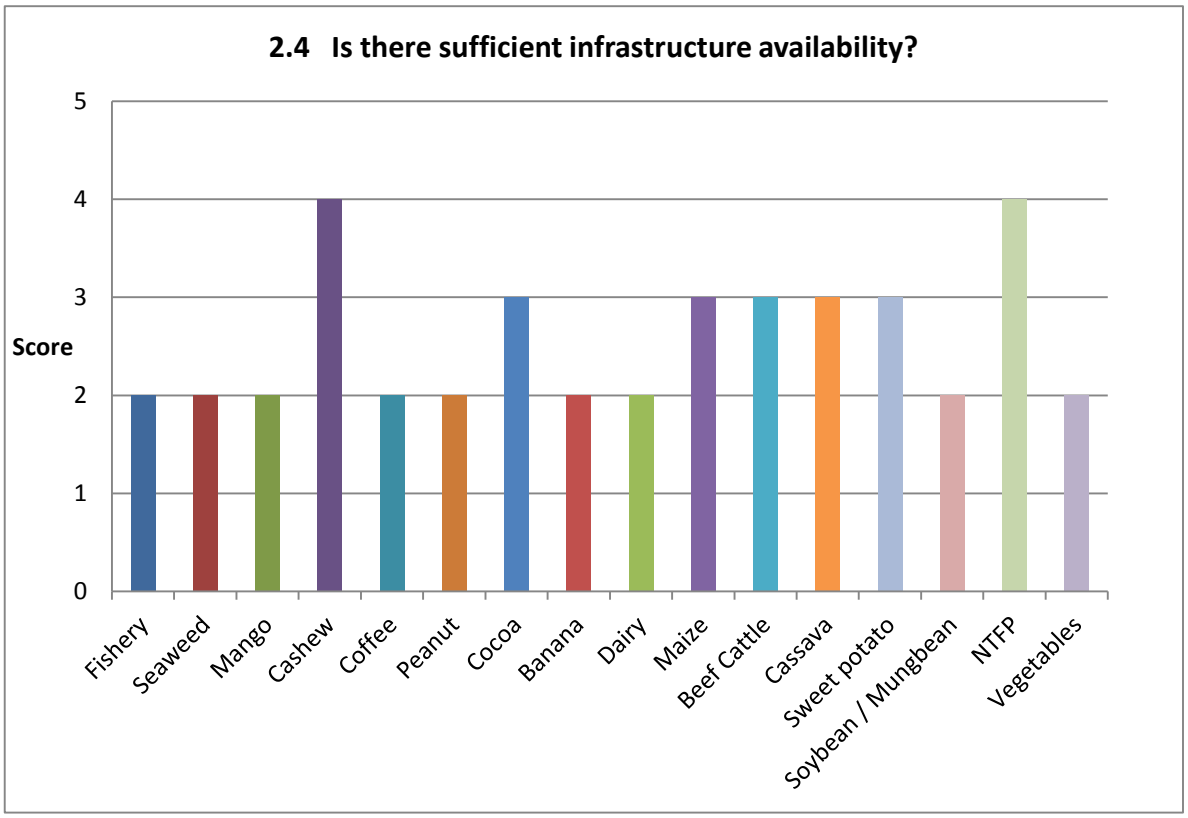


Figure 11. Commodity ranking for the availability of sufficient infrastructure

Sectors such as cashew and NTFP score well against this criterion due to their lack of infrastructure requirements. The durability of the cashew nut protects it in transit.

Other sectors are all somewhat constrained by a lack of available infrastructure. Perishable products such as milk need a cool chain, and beef cattle need suitable handling infrastructure.

6.6 Selection of lead commodities

The final commodity ranking (commodity score multiplied by weighted criteria) is presented in Figure 12. The top five commodities that provide the highest likelihood of achieving the goals of AIPD-Rural are beef cattle, mango, maize, vegetables and peanuts.

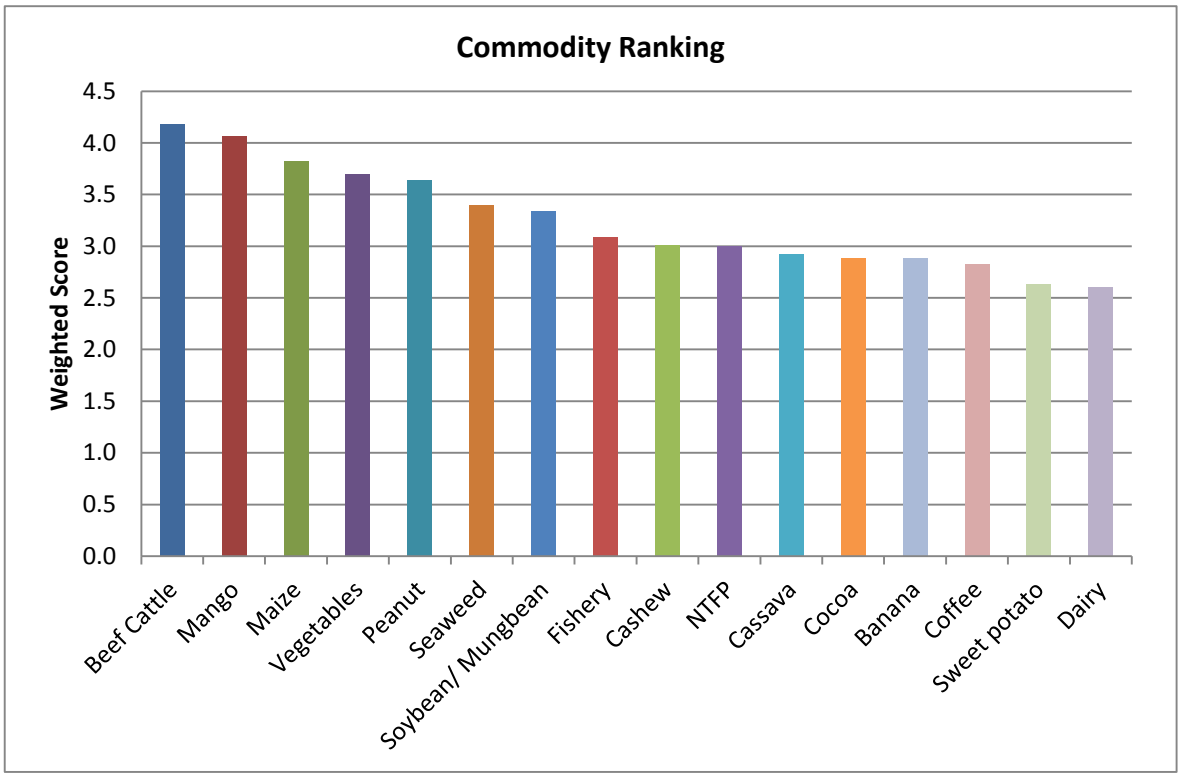


Figure 12. Final commodity ranking

This result was presented to the project reference group for a final recommendation during the Sanur workshop in June 2012. The project reference group considered the ranking outcome and discussed the higher order criteria it had earlier identified that may influence the final selection. The reference group then presented its recommendation on the five lead commodities to be analysed in Phase 2 of the EI-ADO project.

The project reference group made only one small change to the commodity listing. It was considered that peanuts, soybean and mungbean were all similar in production systems and should therefore be combined in a grain legume commodity. This resulted in the selection of the five lead commodities being: beef cattle, mango, maize, vegetables and grain legumes. Figure 13 below represents the final recommendation.

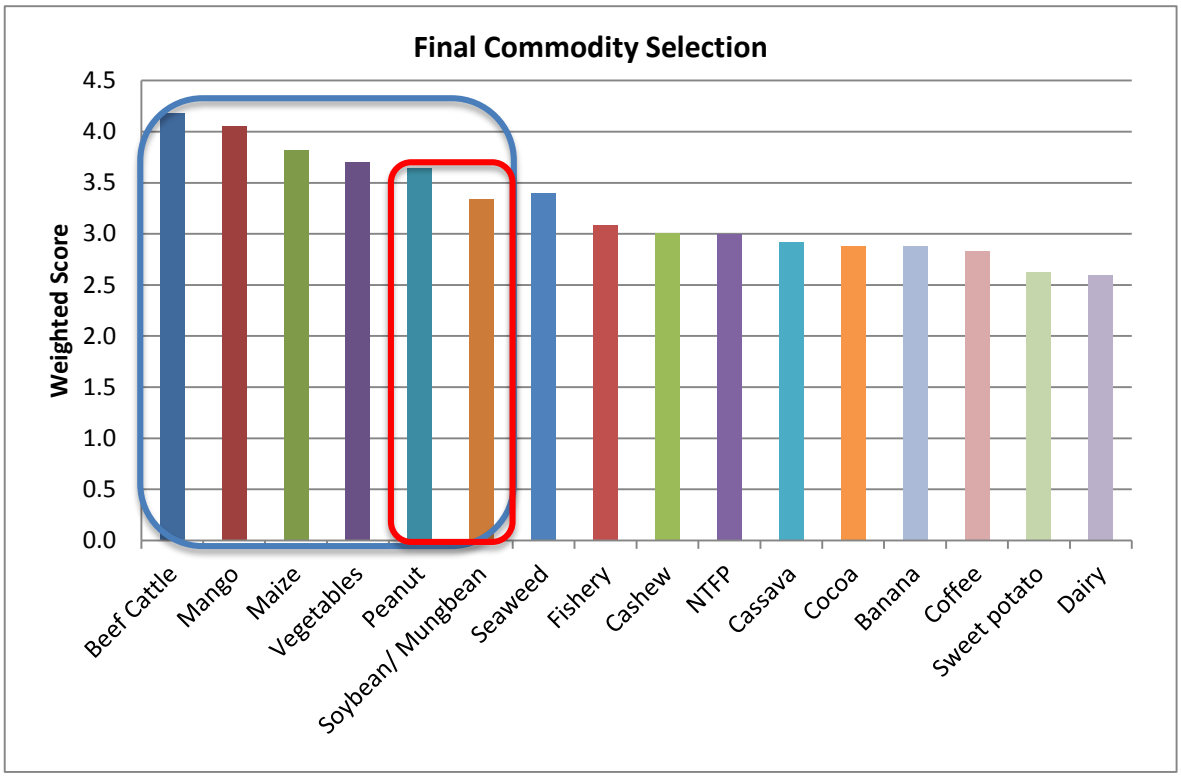


Figure 13. Final lead commodity selection

7 Stakeholder Consultation

As outlined in the M4P handbook, consultation is a key element in selecting the appropriate commodity value chains most likely to address stakeholder's goals. As a result a large number of stakeholder engagement activities were undertaken.

In March 2012, the AICAR Project Coordinator (Teddy Kristedi) undertook a series of 15 meetings across the provinces of East Java, NTT and NTB, meeting with district and provincial government representatives to discuss the project, gather an understanding of district/provincial commodity priorities and collect feedback on the draft selection criteria to be used to rank the commodities. This information was fed into the commodity selection process.

In April 2012, a stakeholder workshop was held in Senggigi, Lombok. The purpose of the workshop was to:

- Update stakeholders on the progress of the project to date,
- Begin to engage key stakeholders in the process of identification of the key commodities that are most likely to help DFAT achieve its goals, and
- Provide direction to the project team as to the general priorities of the study provinces on those commodities they considered important to their population and could contribute to the DFAT goals.

(See Appendix 1 for the Lombok workshop notes along with a participants list.)

The information and data outputs from the workshop and the relationships established with representatives from the three study provinces provided the project team with a valuable basis to commence the socio-economic review immediately following the workshop.

A key outcome from this workshop was the endorsement of the first two commodities of beef cattle and mango as lead commodities.

In June 2012, the project reference group and some invited observers met in Sanur, Bali to determine the final three lead commodities. The outcome of this meeting has been described in Section 6. Appendix 2 contains the Sanur workshop notes and participation list.

To maintain a high degree of stakeholder engagement in the study, the project team is circulating a monthly project update to the reference group and the wider stakeholder audience. Appendix 3 contains the updates to date.

8 Key Project Outcomes

The key project outcomes delivered by this project include:

- A socio-economic review covering the provinces of East Java, NTT and NTB
- The consensus selection of the five lead commodities for further study in Phase 2.
- Through the stakeholder consultation and engagement undertaken by the project team and ACIAR, a momentum of support has been built for Phase 2 of the project.

9 Recommendations

Following the principles of the M4P Making Value Chains Work Better for the Poor tool book has delivered five recommended commodity value chains for further study under Phase 2 of the project. Two SRAs (beef and mango) have already been developed and it is recommended that the final three SRAs for vegetables, grain legumes and maize be contracted prior to field work commencing in October 2012.

10 References

Asian Development Bank (2006) Country Gender Assessment: Indonesia

Asian Development Bank (2009). Trade and Growth Hprizons for Nusa Tenggara Timur and Timor-Leste. Southeast Asia Working Paper Series, No. 4.

Barlow, C. and R. Gondowarsito (2007). Socio-economic conditions and poverty alleviation in Nusa Tenggara Timur.

Badan Pusat Statistik-Statistics Indonesia (2012) Trends of Selected Socio-Economic Indicators of Indonesia. Statistical Yearbook of Indonesia.

Badan Pusat Statistik-Statistics (BPS) Indonesia (2011) Strategic Data. BPS.

Baden Pusat Statistik (BPS) Provinsi Nusa Tenggara Barat (2011). Nusa Tenggara Barat, Province in Figures 2011.

Baden Pusat Statistik (BPS) Provinsi Nusa Tenggara Timur (2011). Nusa Tenggara Timur, Province in Figures 2011.

Baden Pusat Statistik (BPS) Provinsi Jawa Timur (2011), East Java, Province in Figures 2011.

Badan Pusat Statistik-Statistics (BPS) Indonesia (2010), Strategic Data. BPS.

Baden Pusat Statistik (BPS) (2010), 2010 Indonesia Population Census.

Cervantes-Godoy, D. and J. Dewbre (2010), Economic Importance of Agriculture for Sustainable Development and Poverty Reduction: Findings from a Case Study of Indonesia, OECD.

FAOSTAT (2011), FAO Online Database, FAO.

FAO (2004), Women in Agriculture, Environment and Rural Production.

IFAD (2008), Republic of Indonesia. Country Strategic Opportunities Programme.

IFPRI (2010), Markets for High-Value Commodities In Indonesia: Promoting Competitiveness And Inclusiveness, Project Note, December 2010.

Jaleta, M., B. Gebremedhin, et al. (2009), Smallholder commercialization: Processes, determinants and impact, International Livestock Research Institute, Kenya Purcell, T., R. v. Gent, et al. (2008). Zambia Participatory Value Chain Management for Poverty Reduction, FAO.

Rada, Nicholas, and Anita Regmi, 2010, *Trade and Food Security Implications from the Indonesian Agricultural Experience*, WRS-10-01, Economic Research Service, U.S. Department of Agriculture, May, pp. 19.

Rajah, R. and N. McCulloch (2012). Agricultural Growth and Poverty Reduction in Indonesia – a Synthesis of Recent Evidence.

SADI 2011

SADI (2010), Provincial Profile NTB.

SADI (2010), Provincial Profile NTT.

The Government of Indonesia (GOI), National Development Planning Agency (BAPPENAS), et al. (2009). National Medium-Term Priority Framework (NMTPF) 2010 – 2014

The World Bank (2011). East Java Growth Diagnostic: Identifying the Constraints to Inclusive Growth in Indonesia's Second Largest Province.

UNDP (2012) One Planet to Share Sustaining Human Progress in a Changing Climate, UNDP.

11 List of Publications Produced by the Project

- Analysis of Agribusiness opportunities in Eastern Indonesia: A literature review of key commodities.
- Agribusiness Development Opportunities in Eastern Indonesia. Socio-Economic Review
- Monthly project updates – May 2012, July 2012

12 Appendixes

Appendix 1: Consultation and Priority Identification Workshop, Lombok, April 2012

AGRIBUSINESS DEVELOPMENT OPPORTUNITIES IN EASTERN INDONESIA

Consultation and Priority Identification Workshop

Lombok, April 2012

June 2012

Collins Higgins Consulting Group Pty Ltd.

Table of Contents

List of Tables and Figures

1 Introduction

1.1 Background

In 2011 ACIAR committed to the development and funding of a project: 'Analysing Agribusiness Development Opportunities in Eastern Indonesia' (EI-ADO). Through this study ACIAR is commissioning research to identify lead commodity value chains to be the focus of a new DFAT program: Australia Indonesia Partnership for Decentralisation – Rural Economic Program (AIPD-Rural). The EI-ADO project will be one of a number of short studies to be undertaken in 2012 to inform the AIPD-Rural program.

In 2012 the Collins Higgins Consulting Group was contracted to deliver the two phases of the EI-ADO project, due to conclude in March 2013. Broadly the activities associated with the project include:

- Preparation of 16 commodity literature reviews to inform the preparation of a detailed socio-economic review for the study provinces (Nusa Tengarra Barat (NTB), Nusa Tengarra Timur (NTT) and East Java (EJ))
- Detailed value chain analyses for 5 lead commodities that are considered to offer the most potential to reduce poverty in rural areas (not just farmers)
- Preparation of a final synthesis report that provides recommendations to ACIAR and DFAT on the value chains studied

1.2 Workshop

A workshop with the project Reference Group and stakeholders from the three study provinces was originally scheduled to be held once the socio-economic review had been completed. Using the findings of the socio-economic overview as a basis, the workshop was to analyse, rank and select five commodity chains with the highest potential to improve the net incomes of a large number of poor farmers in the study area.

Due to circumstances outside of the project team or ACIAR's control, this schedule was amended and the workshop proceeded in early April 2012 prior to the socio-economic review being undertaken. The baseline literature reviews that supported the socio-economic review have been completed.

1.2.1 Purpose

A two day workshop was held in Sengiggi, Lombok, on 3rd and 4th April 2012. The purpose of the workshop was to:

- Update stakeholders on the progress of the project to date,
- Begin to engage key stakeholders in the process of identification of the key commodities that are most likely to help DFAT achieve its goals[6].

[6] *The goal of AIPD-Rural is to increase the income of more than one million poor male and female farmers by 30%. It will promote the value chain competitiveness through better farm practices, better access to input and output markets and an enhanced business enabling environment for agribusiness.*

- Provide direction to the project team as to the general priorities of the study provinces on those commodities they considered important to their population and could contribute to the DFAT goals.

The information and data outputs from the workshop and the relationships established with representatives from the three study provinces provided the project team with a valuable basis to commence the socio-economic review immediately following the workshop.

1.2.2 Participants

Over the course of the two days a total of 28 people participated in the workshop. Those present included the project team, the project Reference Group, ACIAR and DFAT representatives and invited representatives from the three study regions of the project. A list of the participants can be found in Attachment 1 of this report.

2 Workshop Summary

This section outlines the general discussions and key outcomes from the workshop. It is structured as per the workshop agenda, which can be found at Attachment 2. Key questions and their answers that were asked during the sessions are included as they provide important information relevant to the project and its scope of operation.

2.1 Welcome and opening address

2.1.1 Dr Ir. H. Rosyadi Sayuti, Head of Bappeda, NTB

Dr Ir. H. Rosyadi Sayuti, Head Bappeda, NTB opened the workshop. In his address he outlined that the NTB Bappeda were keen to continue with the follow on to the SADI project, and the success the NTB Bappeda was having with their 2009 PICA program, which focusses on developing three commodities – cows, corn and seaweed. Dr Rosyadi Sayuti reported that the number of households involved and engaged in the project has increased significantly and they are expecting to meet their goals, which include doubling cow numbers and seaweed production from 2008, by the end of 2013.

Dr Sayuti outlined that they are hoping to have developed an industrialised agricultural program, where investors have invested down the supply chain for these key commodities and value adding opportunities are realised. He hopes that the AIPD Rural project will support this goal.

Dr Sayuti finished by encouraging the developers of the new program to ensure it is action based not just research based.

2.1.2 Ms Rani Noerhadhie, DFAT

The group was then introduced to Ms Rani Noerhadhie from DFAT, who provided an overview of the new AIPD Rural Program. Key points include:

- In Dec 2011, Australian Prime Minister Julia Gillard announced $112 million funding over six years for AIPD Rural. The majority of this funding will be expended through AIPD Rural, with the rest through other partners.

- For AIPD Rural in year 4 of implementation there will be a review conducted to decide whether the program will continue.
- New program is a continuation of SADI, however it will have a different type of management to SADI.
- Program focus: because 60% of poor live in rural areas where agriculture is the main income source, the objective of AIPD Rural is to increase farmers income through
  i) better farming practices,
  ii) access to markets, and
  iii) working with local governments to improve the business enabling environment.
- AIPD Rural will work in 5 provinces and 4 districts within each province. Districts will be chosen through AIPD.
- End of program outcomes: want to be working through value chains that are best placed to increase poor farmers' incomes; there is a clear link with poverty reduction effort.
- Market led approach: M4P approach will be the basis for selecting the commodities that have the most potential to increase farmers' incomes and reduce poverty.

Questions for presenters

Q. How is the proportion of resources to each province to be decided?

Rani: too early to decide but 1 million farmers is the target. It is likely that those districts that have more farmers will be those which are selected. The program team will have discussion with DFAT Rural unit on how best to implement the program.

Q. What is the structure at national, province and district levels?

Rani: there is a project team. For each district the project team will share an office with AIPD and will work with Bappeda staff and Dinas Pertanian. District officials, provincial officials and central government will all be involved.

Q. Why is this project only using a commodity approach for poverty reduction?

Rani: this methodology was chosen because of lessons learned from SADI and other programs. These showed that if we are working to address constraints and issues of commodities that are profitable then this can increase the income of farmers, and the flow of products from farm can reach markets in an efficient way, contributing to reduced costs and increased income to farmers.

2.2 Introduction and purpose

2.2.1 Dr Peter Horne, ACIAR Canberra

Peter Horne broadly introduced the project and the purpose of this workshop, which was to review the information that has been gathered about agribusiness opportunities and use this as a basis to identify those with most potential to improve incomes.

Expected outcomes from this workshop include:

1) help the project team identify gaps in information and analysis,
2) hopefully prioritise the commodities, and
3) identify at least two commodities which have high potential and will be the focus of more detailed value chain analysis.

Questions for presenters

Q. Please clarify if we are talking about five provinces or three?

Peter: outlined that the AIPD Rural project plans to involve five provinces (EJ, NTT, NTB, Papua and West Papua), however this study (EI-ADO) will start in three (EJ, NTT and NTB) and the project collaborators will discuss how it moves later into Papua and West Papua.

Rani: given some sensitivities currently exist with work in the other two provinces, work will commence in the more sophisticated provinces first.

2.3 Project overview and progress to date

2.3.1 Dr Rodd Dyer, ACIAR Canberra

An outline of the workshop agenda for the two days was presented. Rodd highlighted that ACIAR were seeking input from participants on where they thought the gaps in the information were, and how these could be filled (a name, a report, etc.).

The key summary points from the presentation to the group on the EI-ADO project include:

- Purpose is to inform the DFAT AIPD Rural program. It will also serve to inform both ACIAR and research institutions as to potential agribusiness opportunities.
- This is only one project that is informing AIPD Rural: one of a number of inputs that will be considered.
- By Dec 2012, it hopes to have identified lead commodity groups, key factors limiting competitiveness and opportunities for agribusiness development
- Started with a wide commodity scope - 16
- Project approach adopted involves:
  - i) series of technical reviews which project team have been busy completing
  - ii) stakeholder consultations
  - iii) analysis and synthesis (gender, poverty and socio-economics) = an evidence based prioritization process to hopefully determine what the important commodities are. This process starts today. Next phase of the project is between June and December when detailed value chain analyses will occur to identify and analyse constraints and opportunities.

- Project will use a value chain approach: the approach that ADI and Tim Purcell have been involved in developing - Markets for the Poor (handbook provided in workshop papers).
- A Project Reference Group exists. Its role is to guide the project team and the study in terms of project design, progress and selection of commodity priorities in different provinces. Reference group will come together to consider progress and advise the project team on aspects of the project.
- Today is only part of the process. Want to develop consensus around two priority value chains if possible by the end of day 2.

During his presentation, Rodd acknowledged the work of Tim Purcell. Whilst he admitted that initially ACIAR questioned whether they should proceed with the project in its current operational form, he knew that Tim would want the work to continue. Rodd acknowledged the efforts of the ADI team to keep the project relatively on track in the lead up to the workshop, and that the disruption had altered the workplan slightly, however this wasn't seen as a significant issue.

Questions for Presenters

Q. ACIAR already has many projects. What is the difference between this and previous projects?

Peter: The priorities may end up being similar but some ACIAR activities are very specifically targeted on technical issues. In this project we are purposefully taking a whole-of-chain approach.

Q. Will you provide support to investors to invest?

Rodd: this study is about identifying agribusiness opportunities. The analysis will analyse existing commodity chains. The implementation phase of AIPD Rural is likely to encourage investors into districts.

Rani: AIPD interventions will be based on further analysis. The program will be about opportunities and constraints, what the program can support to assist. There is a possibility of assisting a company like Garuda Foods. What has been identified is access to markets and processing etc. This could be done if there has been identified a difference between market demand and what farmers provide.

Q. What is the relationship between this EI-ADO work and the commodities selected by the AIPD Rural design team?

Rodd: that was preliminary work and this work is starting from "zero".

Rodd then introduced Stuart Higgins, the project leader. Rodd outlined that whilst ADI was originally contracted to undertake the EI-ADO project, with Tim's death the project team had regrouped under the Collins Higgins Consulting Group.

2.3.2 Mr Stuart Higgins, Collins Higgins Consulting Group

Stuart outlined to the workshop the project progress to date. Key points include:

- Project team had been busy preparing the literature reviews for the 16 selected commodities. These are (in no order of preference):

Banana	Cocoa	Mango	Peanut
Beef	Coffee	Marine Capture Fisheries	Seaweed
Cashew	Dairy	Mungbean /Soybean	Sweet Potato
Cassava	Maize	Non-Timber Forest Products	Vegetables

- Summaries of each commodity have been prepared and translated into Bahasa Indonesia for this workshop. Project team is seeking feedback on any significant gaps in the information.
- Draft selection criteria for ranking the commodities have been identified in line with the Markets for the Poor (M4P) methodology and will be presented to the workshop.
- Ideally this workshop would have occurred following the drafting of the socio-economic review, however with the unforeseen disruption to the project, this activity will now occur following the workshop.
- The information gathered through the literature review process and socio-economic review will be used in the commodity ranking process, and recommendations made to the Project Reference Group as to the five lead commodities that will be further studied through detailed value chain analysis.
- The rest of the sessions on the agenda are important in the data collection phase to identify priority commodities within provinces and districts.

Questions and Comments

Q. What are the actual criteria for selection of commodities into the value chain analysis? Is it the area of the commodity, number of farmers, contribution to the economy? I am worried that there will be too many criteria and we will get lost.

Teddy: explained that the consultation process and information collected in literature reviews and socio economic review will be used to narrow the long list of commodities to short list.

Stuart: outlined that following this provincial update on the agenda the project team would be outlining the selection criteria for the group to consider.

C. Why are the discussions being held at province level, when it is the district that has the land? Another challenge is that national, provincial and district governments have their own priorities.

Q. There are many projects including AMARTA, Swiss contact etc. How do we prevent duplication?

C. Need to take care not to duplicate other activities. If the commodity is already subject to a Government program, should we go with these ones or go with other ones? The issues may already be being handled by the government. On the other hand this work might

identify priorities that are being invested in by government (e.g. soybean), but might be able to look at something else in the chain e.g. market chain.

3 Overview of Provincial/District Commodity and Agribusiness Priorities and Strategies

Prior to the workshop, representatives from the three study provinces were asked to prepare an overview of their provincial/district priorities and strategies to share with the other participants and project team. Their key points are outlined below.

3.1 NTT – Pak John Berek, Bappeda

- Three islands in NTT: Flores, Kupang and Sumba; we have four regencies: TTU, SBD, Flotim, Ngada.
- Issues include lower productivity than national average, a lot of farmers, a subsistence food and opportunities for developing different commodities.
- Commodity comments include:
  - Cocoa: Flores: productivity is lower than the national level, can be produced all year long.
  - Cashews: lower productivity than national level, grown in many different districts, sold through “ijong”.
  - Bananas: almost all farmers market in Bali and Java all year round.
  - Cattle: high mortality because of the way they are reared just being left to roam around (lepas). They are owned by the elite, concentrated in Timor Island where there is a shortage of food.
  - Peanuts: are in many districts, there are many varieties, including “unggulan” varieties (superior local varieties). Post-harvest is not maximised.
  - Coconut: is very important as monthly income but very low price.
  - Coffee: only on Flores, most is Robusta, only a small amount is Arabica, post-harvest is still a problem.
  - Pigs: local, most are left to roam free (lepas), although there are more intensive systems in Kupang, they receive a high income: there is a lot of potential.
  - Capture fisheries: most districts especially in Flores, Timor, Lembata and Alor: only on the coast, most small fishermen capitalized by system “juaran”, occurs all year long.
- At the provincial level we selected 5 priority commodities: maize, cattle, cocoa, cashew, and banana.
- These commodities have been selected as they match with the districts selected in the program (TTS, TTU, SBD, Ngada).
- Government programs (anggur merah) exist: in every village for 250 sub-districts, get Rp 250,000 per village.

- ToT, supported by DFAT with APBD.
- Also Bupati TTU put in a proposal about rawan pangan (food insecurity) to the Central Government, this proposal is currently being reviewed by the Directorate of Food Crops, it is hoped that DFAT will provide follow up support.

3.2 East Java – Pak Ahmad Solehan, Bappeda

- Apologies from Head of Bappeda. The representatives that are here from EJ are acknowledged as they are very busy at the moment.
- Each regency has their own superior product: e.g. Malang - has apples that you can't find in other areas. This is as an example of how districts have their own superior products.
- Number of population: 37.5 million.
- Economic growth in 2011: 7.22% growth, higher than national. Dominant sectors: farming, processing, trade, hotel and restaurant.
- Six plant commodities were discussed :
  - padi (rice)
  - jagung (corn)
  - singkong (cassava)
  - tebu (sugar)
  - kopi (coffee)
  - coklat (chocolate)
- From results of first consultation - rice and corn were considered superior commodities.
- From the ocean:
  - ikan cakalang (fish cakalang)
  - rumput laut (seaweed), 214 k tonnes
  - udang (prawn) windu ikan (fish) kacap merah ikan (fish) tuna ikan (fish) layur have potential as not yet over fished
- East Java position is strategic because of the port Tanjung Perak.
- Poverty is dropping from year to year; with pro-poor, pro-jobs, pro-environment; for reducing poverty; 2.45%
- Visi-misi East Java: 2005-2025: will become centre of agribusiness: quite a challenge because a lot of challenges. However, to implement this vision, have a mission: improve SDM, natural resources, infrastructure, etc.
- Develop EJ based agriculture: push agribusiness based on comparative advantages: capital and technology and increase the capacity of the SDM.

- Investment and widen land, increase production for export food security, develop "agro-politan": develop one superior commodity in the district: need support from many partners: private and government: agribusiness: done by ACIAR.
- Potential for EJ: rice, 3.2 m ton, corn, peanuts, cattle, animal feed.
- Issues: food security, agribusiness, farmer welfare.

3.3 NTB – Pak Karim, Bappeda

- Many programs are running in the Province - Revitilisasi Petertanian Perikanan dan Kehutanan (PPK) (Revitalisation of Farming, Fishing and Forestry).
- Aim is to increase the superior industries, poverty and employment.
- NTB people orientated toward livestock - basis for savings, protein, biogas etc. fuel by-products, increase PDRB (regional domestic product): there are 695,000 head of cattle in NTB.
- Corn is a superior product (unggulan). Planted over wide area, easy to produce, only use small amount of water, free from OPT, SDM and land available.
- Seaweed - produced all year long because of good conditions in NTB. Priority is to develop good export opportunities, simple technology, small amount of capital needed, absorbs labour, enough different products, have enough land available.
- Coffee - prospects good for being developed.
- Cocoa - have been done enough times. Good climate in the North. 9,000 families involved.
- Support from government: significant support from APBN and APBD.
- Still a lot of potential to further develop the commodities.

3.4 Case Study: Building agribusiness links with smallholders - challenges and opportunities

Pak Budiono, Garuda foods

Pak Budiono from Garuda Foods was invited to the workshop to present to the group on some of the activities and challenges Garuda Foods have faced and how they have addressed them. Key outcomes from his presentation are outlined below.

- Activities undertaken include – offering a market guarantee, holding a peanut forum and good procurement practices – farming is a business.

Considerations for Garuda Foods (BMT):

- Has a limitation of raw materials, recognises it need to build this.
- Corporate philosophy - honesty, quality from the start.
- Look at the feasibility from farmers and market potential (who develops the commodity) to the commodity.

- Farmers don't always farm the same commodity from year to year.
- Business impact: logistic, HRM, how to increase farmer income, involve other small to medium enterprises, supplier fertilizer etc., this is a sustainable approach.
- Farmer is the subject: but need support from government.
- Also do on their own land: "on-farm" helps to close the productivity gap? How can we improve this technology?
- BMT: market guarantee, TA, R&D, local government, policy, finance, empowerment.
- Moved from NTB to Sulawesi: with a business model involving both a company farm and farmers because a continuous supply is difficult with only farmers: farmers can only supply 50% of capacity.
- BMT needed additional land which they couldn't get in NTB but they were able to obtain this land in Central Sulawesi (Sulteng). In Sulteng they got land for palm oil and coffee as well as peanuts. With the farming model, smallholder farmers are located around the corporate farm which becomes the source of materials; the corporate farm becomes a demonstration farm for the smallholder. From SADI they learned that the key is in the technology whether adapted to small or large scale.
- Production (quantity and quality) x price = revenue: often price is a problem, but the supply is a problem in Indonesia. The yields are low in Indonesia. Assistance is always welcome anywhere but BMT are really keen to increase the production so keen on collaboration.
- Profit = revenue - cost .
- Research - often research results are not applied (through research organization and private sector/business). Need more resources for applying the results of research.
- Lead firms know about the problems of the farmers.
- The approach: problem, solution, development.
- BMT: hope that farmers can become independent; forced more quickly to become independent; 200,000 tonnes of peanut are imported every year.
- Peanut forum: farmers still have tendency to sell to other companies when the price is higher. Have taken the approach to fix the price at the start, so growers can decide if they don't like it they don't have to get involved.
- If quality is good, then farmers get a bonus.
- Farming is business; sometimes farmers have not got to that point.

Comments

- It is still happening where farmers sell to other traders even when the fixed price approach has been used. Still need sustainable partnership between farmers and others. Farmers follow the market price.
- Influence of BMT on farmers - farmers often only focus on price. Need to encourage farmers to see that business is profit, not just price so can focus on increasing production.

- Technology - a strategy can also focus on reducing inputs as well as increasing outputs. It would be good if a new strategy could focus on reducing input costs.
- In Java: have experience in purchasing half finished products: this has not yet been introduced as a model in Lombok but it could work well.
- The idea of the peanut forum was that it was a dynamic forum for processing but in reality this didn't happen. Need to prepare extension officers and work with industry. Can get technical assistance, guaranteed market. Farmers need to understand this.

Questions

Q. A food processer can obtain raw materials from many sources - import, self-produce, etc. What is the motivation to get raw materials from farmers through contract? Which is more efficient - farmers under contract or from spot market or from import? Important to analyse system as a whole:

Budiyono: BMT aim to smooth the supply chain. Can't work solely with farmers because they are unreliable. With farmers, seeing is believing. Also with the corporate farming, the yields increase more quickly but don't have full supply from corporate farming because it's not sustainable.

4 Provincial and District Consultation and Feedback

4.1 Overview – Pak Teddy Kristedi, ACIAR Jakarta

In the three weeks leading up to the workshop, Pak Teddy Kristedi, ACIAR Jakarta, facilitated consultation and feedback meetings across the three provinces. Key stakeholders involved included: Bappeda, SKPT, Dinas etc, BKMD, Dinas Koperasi. Key issues discussed included the priority commodities at district and provincial level, and the indicators that would be used in the selection of the lead commodities within the project. A summary of the key findings was presented to the workshop.

- 15 meetings were held across EJ, NTT and NTB and varied in number of participants.
- Groups discussed examples of the selection criteria and began to identify what commodities they felt were the most important for their provinces and districts.
- It was recognised that some commodities will occur across a number of provinces and some only occur in one province, and that some commodities are important for some districts and not others within a province.
- 2 categories of criteria were raised: (i) poverty and sustainability (ii) market structure.

Table 1: Examples of the Key Selection Criteria Discussed at Provincial and District Consultation

Key Selection Criteria	
Poverty and Sustainability	Availability of Natural Resources
	Within Framework of National and Regional Strategies
	Potential for Labour Intensive Technology
	Number of People Involved in Industry (Poor People)
	Future Potential
	Fit with local culture
Structure of Chain	Extent of Value Adding Potential
	Number of Different Products Produced
	Length of Marketing Chain, Number of Intermediaries
	Maturity of Industry in Region
	Marketing Potential
	Lack of Previous Research
	Data Availability
	Potential for "Lessons Learned" / Replication of Mechanisms

Questions

Q. Is the priority on food security or increased income? I think it is more important to prioritise food security.

Rodd: The AIPD Rural focus is on income development rather than food security.

Rani: Food security is another program in DFAT.

Q. Priority commodities will depend on the district that we consult with: if we consult in Probolinggo they will say Mango, if it is Malang, they will say apples. How are we going to account for this?

Rodd: this consultation represents a snapshot of one level of thinking; we don't propose just to go with this list but have further process of incorporating data and analysing.

Peter: this is a learning process; there might be one or two commodities that are specific for one or two of those districts.

5 Selection Criteria, Prioritization Process and Higher Levels of Stratification/Filtering

5.1 Ms Rouja Johnstone, Project Consultant

Rouja provided the workshop with an overview of the process for selection of the lead commodities. Key points from the discussion (see Attachment 4 for presentation slides) include:

- It is important to understand that the consultation process undertaken by Teddy, the commodity literature reviews and the feedback from this workshop are all linked and important steps in building the overall picture.
- Process that will be adopted is that as outlined in the *Markets for the Poor Handbook* (everyone has been provided a copy translated in to Bahasa).
- Selection of lead commodities to investigate needs to take into account the objective of the project and development initiative.
- Two key criteria of the project are - considering potential for poverty reduction and market development potential. Sub-criteria exist around these.
- Commodities are then scored against each criterion. The criteria will be weighted because some of them are more important to the decision making process.
- We will multiply the weighting by criteria satisfaction score to obtain a score out of five.
- These rankings will be discussed to reach a consensus on the five lead commodities.
- The important thing is that there are some criteria that the specialists will be thinking about when they do the analysis.

Comments

- The process needs firms that are willing to work with farmers.
- Farmers need access to information about the market.
- In designing the project and determining final lead commodities, we need to consider existing institutions, links to government policy and ensure strong institutional support is gained.
- The criteria should focus on supporting government policies: farmers are not motivated to produce because at the district level there are a lot of fees and levies charged (pungutan).
- Selection should also focus on products with potential: e.g. dairy - there isn't any dairy currently in NTT, but there is potential.

Questions

Q. In terms of poverty alleviation are there indicators that might have been missed out?

Rouja: As the project team evaluates each commodity they will be evaluating the indicators and any gaps as part of the research.

Rani: the socio-economic review will also assess a range of factors that influence provinces at a broader level: poverty, demographic impacts, etc.

5.2 Discussion and Prioritisation of Commodities

The workshop then focussed on the 16 commodities and capturing their priority relative to each other within each Province. This information will provide important information for the project team in the ranking and selection process.

Participants were presented with a quadrant graph and, following a presentation by the project team of an overview of each commodity, encouraged to provide feedback and

comments, and were then asked to identify where on the graph the commodity approximately sat within their province.

The quadrant graph (Figure 1) was designed to capture each commodity's importance against the key criteria of potential for poverty reduction and potential for market development.

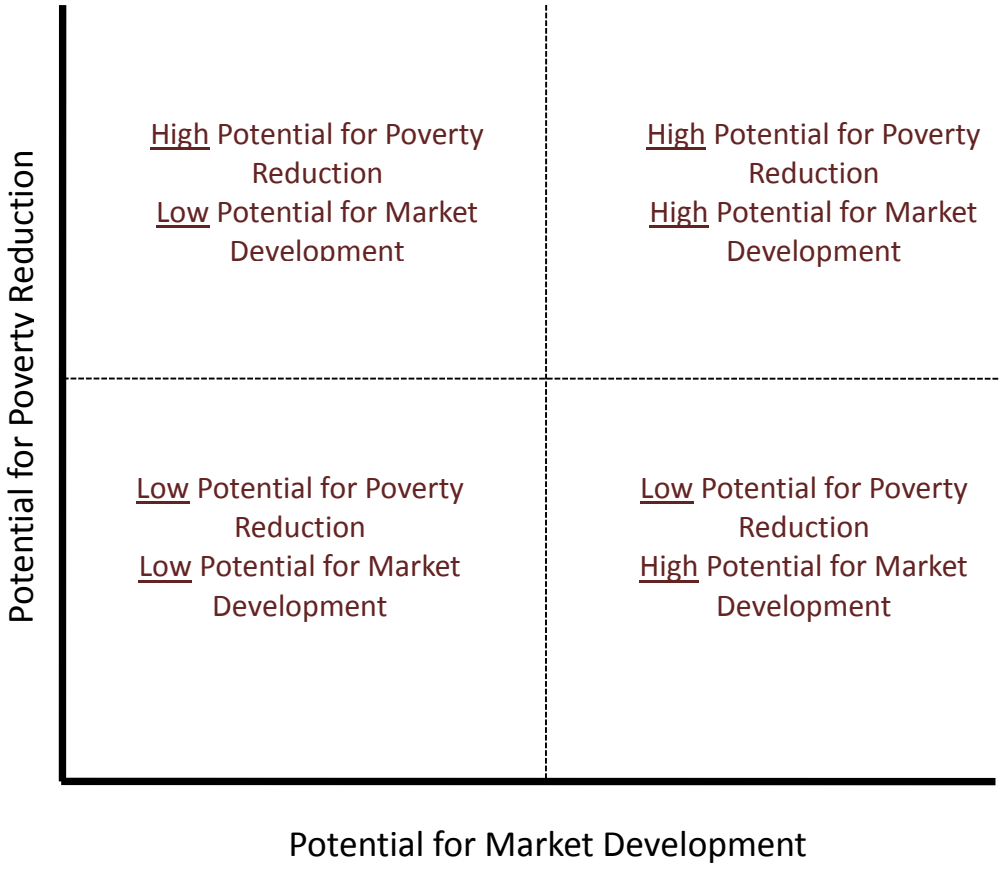


Figure 1: Potential for Poverty Reduction and Market Development of Commodities

The following section is a summary of the feedback received for each commodity and the relative position of the commodity within the Provinces. Graphs depicting the position of all commodities by Province are presented at the completion of the commodity summaries.

5.2.1 Livestock

Comments

- Based on statistical data, only two cattle per farmer in NTT - low productivity. Different type of business in NTT and East Java.
- Another ACIAR research project found that farmers are price takers; they don't control the price. Brokers work together to push the price down. This needs to be considered.
- The price of breeding stock continues to increase because of strong demand
- Need to include socio-cultural study to cover off issues such as sustainability and market access.
- Live cattle are much cheaper than meat.

- Current problem with cattle is the slaughtering of productive cows.

Questions

Q. Regarding value adding: what about compost?

Project team: noted

Prioritisation of commodity

EJ: because of high numbers and potential to reduce poverty **-**

High potential for poverty reduction, High potential for market development

NTB: **High potential for poverty reduction, High potential for market development**

NTT: **High potential for poverty reduction, High potential for market development**

5.2.2 Cashews

Comments

- In Sumbawa cashews have been taken out and replaced with corn.
- Old trees are not really productive/efficient.
- Brief states that even if world's best practice in cashew, it still wouldn't raise households out of poverty.
- There is a processing plant in Ende and they sell to India.
- Cashew trees will need replanting and this will take time.
- Cocoa and coffee have a higher price.
- In NTT cashews are cultivated on marginal land where you can't grow any other crop.
- Can grow guava and cashews on marginal land.
- No one grows guava on marginal land in NTT can't grow guava on marginal land.
- The guava is just an example

Prioritisation of commodity

EJ: The potential of the cashew commodity chain is not that great. Farmers only do it as a side enterprise; the agro climate is only conducive in a few places.

Low potential for poverty reduction, Low potential for market development

NTB: **Low potential for poverty reduction, Low potential for market development**

NTT: Some disagreement with the positioning of this one. Pak John Berek feels this should be similar to beef (high, high), however in discussion it has been relocated (low, high).

Low potential for poverty reduction, High potential for market development

5.2.3 Maize

Comments

- This sector is crowded: for EJ: lower potential because there are many agribusinesses getting involved.
- Potential is high and because of this farmers have enough have an interest to plant. There are potential markets, there are a lot of companies making animal feed but the sector is crowded with many players.
- Government has put corn as a main priority.

Prioritisation of commodity

EJ: price is not that good but has a wide marketing potential, so therefore

Low potential for poverty reduction, High potential for market development

NTB: corn production is maximum: the local government are moving towards industrialisation so

High potential for poverty reduction, High potential for market development

NTT: corn is a mainstay for food consumption: price is higher than rice, put it a little lower than cattle.

High potential for poverty reduction, High potential for market development

5.2.4 Capture Fisheries

Comments

- In EJ the potential for the impact on poverty reduction is big enough, but we need an intervention on policy from government about fishing industry so fishermen get assistance with technology that could increase the price.
- Most of the fish at Jimbaran is from NTB so there is a big market demand
- Price of fish is high because of high cost of transportation, also the high price goes to the traders not the fishermen
- Fisheries for NTB: opportunities in fish processing but constraints in the cold chain
- NTB: small scale fisheries not yet optimum: the market is high but to reduce poverty is difficult. But while the market situation is currently not so supportive for poverty reduction, there might be potential.
- Recently talked with an exporter: he worked with 400 fishers, provided all their needs and then they sold to him: this is monopoly

Prioritisation of commodity

EJ: high potential; not as high on either scale as cattle though.

High potential for poverty reduction, High potential for market development

NTB: **High potential for poverty reduction, High potential for market development**

NTT: **On mid-line for potential for poverty reduction, High potential for market development**

5.2.5 Seaweed

Comments

- The definition of this commodity needs some clarification: is it just seaweed, or should we be talking aquaculture?
- Seaweed has a big volume: needs to be shipped to Java.
- An ACIAR project is also developing opportunities for sale of waste product which makes up 90% of bulk of seaweed.

Prioritisation of commodity

EJ: there are some coastal areas that have a specific ecology that is supportive but not all areas in the province. There are not a lot of farmers are involved.

Low potential for poverty reduction, High potential for market development

NTT: site for seaweed is limited, can only produce during monsoon.

Low potential for poverty reduction, Low potential for market development

NTB: under cattle: good for reducing poverty, market potential also good.

High potential for poverty reduction, High potential for market development

5.2.6 Grain Legumes (Mungbean, Soybean)

Comments

- EJ: enough potential for soy bean, almost every district has it, but to increase the productivity is large. Max: 2 ton/ha. JICA has been working for 10 years in soy mean but hasn't helped much. The impact on poverty is not big, the farmers stay poor: for each farmer the amount of land is small.
- There is a big demand but agree it is not easy to increase productivity and the price is low compared to maize and other crops. A lot of farmers have left soy bean to grow maize and so production is reduced from year-to-year.
- This is one of the five priority commodities: government has put a lot of money into it but no one wants to grow it. When there is a maize program everyone chooses maize because the market is supportive.
- NTB: mungbean is similar as with soybean but it is planted in relay planting with corn: before corn is planted, plant mungbean.

Prioritisation of commodity

EJ: Low potential for poverty reduction, High potential for market development

NTT: The only people in NTT who consume tempeh/tahu are immigrants and it is imported from Java.

Low potential for poverty reduction, Low potential for market development

NTB: **Soybean – Low potential for poverty reduction, High potential for market development**

Mungbean – Mid-line potential for poverty reduction, High potential for market development

5.2.7 Peanut

Comments

- Peanut potentially could reduce poverty as the demand is high but the issue is quality seed.
- Can other districts be involved in AIPD Rural? Yes, but we will start from the four districts then move out to include other districts for replication and scaling up.
- With Garuda Food out of NTB, question is will demand stay the same? Yes we think so – market not only from GF.

Prioritisation of commodity

EJ: potential for poverty reduction is high, the economic value is high, so :

High potential for poverty reduction, High potential for market development

NTT: **Low potential for poverty reduction, High potential for market development**

NTB: Sumbawa has high potential, but lower than maize .

High potential for poverty reduction, High potential for market development

5.2.8 Cocoa

Comments

- EJ: still raw materials, which means still low income so not that much potential for poverty reduction.
- NTB: Sumbawa and districts at the foot of mountains (including Central Lombok and West Lombok) have potential. Good price.
- If it is dried then can sell for $20,000 per kg: but how can they value add?

Prioritisation of commodity

EJ: Low potential for poverty reduction, High potential for market development

NTT: Has good potential and lots of people grow.

High potential for poverty reduction, High potential for market development

NTB: **Mid-line potential for poverty reduction, High potential for market development**

5.2.9 Coffee

Comments

- There is a research centre for coffee and cocoa in Jember (EJ).

- IFC: ICCRI have been working for a long time. Is there any significant training modules? Yes, plenty. The issue is in the mind set of most farmers: there are 3 crops (cocoa, coffee, cashews) which can maintain themselves. This has become a big concern for traders. Yield per hectare keeps decreasing. The potential should be higher. Farmer attempts to increase productivity are very project based (e.g. will use fertilizer if there is an offer of free fertilizer).
- Biggest impediment is access to finance, according to farmers: IFC has provided support to farmers in terms of access to finance (collateral free and available finance through IFC) but still not getting the results. IFC is hoping that with support for correct production techniques they will get good results and make the other farmers keen. If provinces place this commodity in the high:high quadrant, then they will need to work hard with farmers.
- EJ: increasing production and targeting export markets has contributed to raising farmer incomes. Have changed from Robusta to Arabica, agro-climate is very supportive in Kawi, Bromo and two other areas.

Prioritisation of commodity

EJ: impact on poverty reduction significant, have enough participating farmers, so:

High potential for poverty reduction, High potential for market development

NTT: participating farmer number is good - Bappeda statistics: 16,000 farmers growing in Sumbawa and Lombok Timur.

High potential for poverty reduction, High potential for market development

NTB: consider that there is enough production in Flores so that there are enough participants in the labour force, so:

High potential for poverty reduction, High potential for market development

5.2.10 Mangos

Comments

- EJ: not only produce green mango but also yellow/red: manga kodang: Kediri: local variety. 1,000 ton per season. Already exported to US. Would appreciate help from ACIAR to progress.
- EJ: also have harum manis.
- For small farmers, practices are so simple but farmed on such a small scale it is not easy to adopt these practices. Even have demonstration for good agricultural practices but still not adopted. Have to speed up absorption of technology, particularly post-harvest practices.
- EJ is the biggest producer after West Java. There are a lot of farmers who have farmed in a good way.
- Can get Rp 3 million per season even without much land. Most grow in the garden. Production has grown during the last 5 years in EJ. Modern market, off-season: mango is more high value economic unit compared to peanut - 3 trees for 3 million compared to peanuts half a hectare for 3 million.
- Fruit crops make more profit compared to coffee: households only have 2 or 3 trees.

- Manga jatim: good potential but in the last few years have had reduction in production due to climate and also caterpillars. This has caused a decline in production:
- NTB: statistical data for 2010 shows mango is the highest fruit product in North Lombok, West Lombok and Bima: this is a product that has the highest production compared with other fruit products.
- NTB: Use system ijong: but doesn't benefit farmers.
- Mango has had research with ACIAR try to export to Singapore, Philippines and Thailand. Most dominant processing product in the airport. Haven't yet processed.
- NTT: if see from data: only 99,000 ton manga: mangga hutan (forest mango). This is not planted but grows itself.

Prioritisation of commodity

EJ: high mango potential especially in Probolingo, Situbondo and Kediri.

High potential for poverty reduction, High potential for market development

NTT: Mango only a hobby except for maybe Ende, Flores timor but not too much population, only sold in local markets.

High potential for poverty reduction, High potential for market development

NTB: If processing potential is high, then there is potential to address poorness. No processing yet, so:

Low potential for poverty reduction, Low potential for market development

5.2.11 Non-Timber Forest Products (NTFP)

Comments

- Difficult to analyse because of variety of different products.
- EJ: tubers growing underground - used as fuel and also exported. Production is high.
- EJ: medicinal herbs exported to Japan. There is a market but difficult to organize as only market through one company. Farmers don't have any other market access. Land ownership issue also.
- EJ: produce specific products: turmeric, ginger, honey but most production is small scale and unorganized. Contracts are every five year renewal with government. Grown in community managed forests.
- NTB: two districts, Lombok Utara and Sombong that became targets. They have community forestry programs: medicinal plants. Have a lot of requests from industry but not able to supply.
- Need to have a network to work together to meet demand: 102 types of product.
- Only for forest areas not everyone living all around
- North Lombok: network for producing honey and forest bananas. Poor people use them. But banana not included in Ministerial decree about NTFPs so dinas kehutanan reluctant to support it.

- NTT: have a lot of NTFPs like Bamboo – used to make fences and furniture. Also have honey, tamarind, guava, palm sugar (for tourist), serikaya (jam made from eggs, sugar and coconut cream) and cajuput oil. These do not have a high level of production and the market is not that good except for tamarind and bamboo. The products are only at the household level except for tamarind which goes to Surabaya.

Prioritisation of commodity

EJ: Many poor people in the forest rely on these commodities.

High potential for poverty reduction, Low potential for market development

NTT: **Low potential for poverty reduction, Low potential for market development**

NTB: **Low potential for poverty reduction, Mid-line potential for market development**

5.2.12 Bananas

Comments

- EJ: high demand for banana. How to organize farmers is the problem because most are small.
- EJ: Have a lot of varieties of banana. Most of the varieties have access to modern markets. The problem is the demand is high but currently only have a small quantity to sell. Pisang mas and other varieties and also for the flour and chips: collecting point in Surabaya and bring to Tangerang.
- EJ: bananas suffer the perception of environmentally damaging - use of a lot of pesticides. In fact our bananas do not require too much chemicals.
- There are a lot of varieties in pisang kapok (merah, raja, putih etc) that have a high value but only a few (maskirana, capenish, pisang agung) for processing. Entering modern markets is very good for family economy. This is what we hope to develop - the number of farmers involved in high markets.
- Pisang mas: grown under contract marketing by three distributing marketers: seu segar (one of them) could market more than 500T per month but can only supply 300 T per month.
- What about diseases? Some of the banana farmers have applied good on and off-farm practices and handling. (E.g. trichoderma for managing Fulsarium wilt). They are trying to address.
- EJ: If we can increase productivity then would contribute a great deal: **put in quadrant 4.**
- NTB: there are special varieties that are needed for Bali ceremonies: have in Lombok, poor people can sell each week but now hit by disease
- Pisang aji can be kept for month without preservative
- There are a lot of farmers in dry areas that have bananas.
- Bappeda NTB; a lot of farmers have stopped planting banana.

Prioritisation of commodity

EJ: Many poor people in the forest rely on these commodities.

High potential for poverty reduction, Low potential for market development

NTT: type of banana in Ende (beranga) has a market but not yet affected by fusarium. Placed above cocoa as a result of production.

High potential for poverty reduction, High potential for market development

NTB: because so many people are involved, if we can increase productivity then it would contribute a great deal.

Low potential for poverty reduction, High potential for market development

5.2.13 Dairy

Comments

- Indonesia produces only 30% of domestic demand: cooperatives, small farmers concentrated in Java.
- EJ: development of dairy industry has been through contract farming between multinational and GKSI: 80% of production under GKSI. Has a contract with at least four multinational companies. There is a monopoly system, but monopoly company provides most if not all inputs to the farmers -breeding cows, infrastructure, etc. Many facilities provided to the cooperative and then deducted from price paid once milk is sold. Improving dairy would require working with the cooperative to improve the system and increase the quality and quantity of the milk.
- Dairy farmers can improve their level of income: is important even if only limited in farmer numbers and area.
- From 80% smallholders that participate, 80% of them are tied to contract and 20% are free: the latter in Blitar, Solo etc.
- Most of production: tied smallholders so need to work through the cooperatives.
- Bapeda EJ: 1,600 T per day produced milk, which is a deficit of 400 T per day. Good potential to develop milk in Jatim. They already have working relationship with milk cooperative.
- The farmers feel that there is no competition in price – it is already decided by cooperative and they can't do anything about it and they can't compete on the market. Some farmers that don't enter the koperasi go straight to the traders. There needs to be an increase in the price then there needs to be a more open discussion to improve price and information to all.
- There is not that many farmers involved. So while there is a lot of demand there is not that much potential.
- Data from GKSI in EJ: increasing trend of both farmers and head of cattle in the industry.

Prioritisation of commodity

EJ: High demand but lower number of farmers participating.

Low potential for poverty reduction, Low potential for market development

NTT: not present in Province.

Low potential for poverty reduction, Low potential for market development

NTB: not present in Province.

Low potential for poverty reduction, Low potential for market development

5.2.14 Cassava

Comments

- Cassava has low price: Rp 8 million per H per year. Although there is new product for bio-ethanol, this cannot increase the price from Rp 800 to 1,000 per kg.
- In EJ there is not so much potential for cassava because there are only a few areas that plant it. In Trenggalek where they used to be big in planting cassava they are now planting less cassava: perhaps because it is less lucrative than other commodities.
- Farmers don't do much by way of nutrition for the crop - don't put fertilizer on. Based on some research results I saw that one plant can have 40 kgs at 8 months old.
- Chinese and Korea have big demand for the crop.
- East Kalimantan have planted 3,000 ha because of an agreement. Also government has agreement for energy in remote areas - they provide grant of RP 1 Million for self-sufficiency. It is up to the regional people whether they want to develop or not.
- Grown by poor farmers, planted on marginal land - acid soil.
- Almost no projects to increase cassava. We do need to consider this commodity to improve poor.
- How big is the demand for tapioca, mocaf, etc.? Answer: the demand is very huge right now - Lampung factories can't get enough raw material so they are getting it from Thailand.
- Peter Horne discussed demand for cassava industrial starch, a crop that farmers have been growing for a long time and which has become commercial. 60 starch factories exist in Vietnam. Feels cassava can make the transition. Challenge is to establish starch factories in eastern Indonesia compared to Sumatra.
- NTB: only grown in Lombok and Bali, not so much in Sumbawa. Have cassava in North Lombok and upland. It is grown in rice paddies only for home consumption and for the local market. There is a processing mill but located in Java. Farmers want to change to mung beans.
- NTB (Bappeda): Related to that: need some policy from Deptan: compared with other commodities the value is very low and not interesting for farmers. Investor from China asked for a presentation but they didn't have any data to present. There is a question of how to make it attractive. It isn't getting any attention at this current time at the province and district level.
- NTT (Bappeda): Produce in 21 districts, cassava has become a national priority: Some question over its potential to improve farmer's income.

Prioritisation of commodity

EJ: a lot of farmers do it but not much potential to reduce poverty because of the price.

Low potential for poverty reduction, Low potential for market development

NTT: question its ability to improve farmer's income.

Low potential for poverty reduction, Low potential for market development

NTB: **Low potential for poverty reduction, Low potential for market development**

5.2.15 Sweet Potato

Due to Papua and West Papua not being included in this analysis, the workshop did not review Sweet Potato at this time.

5.3 Commodity prioritization by province

The combined Provincial prioritization of commodities relative to each other is presented in Figures 2 to 4.

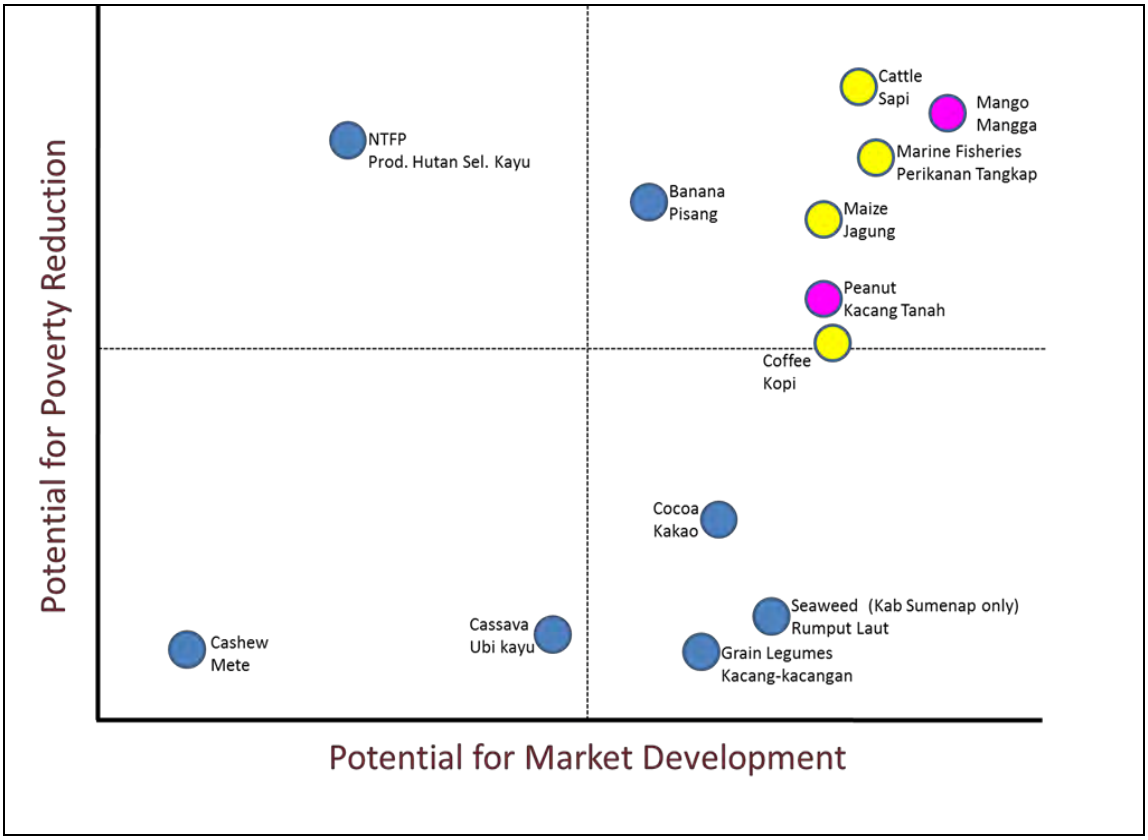


Figure 2: Commodity Prioritization for East Java

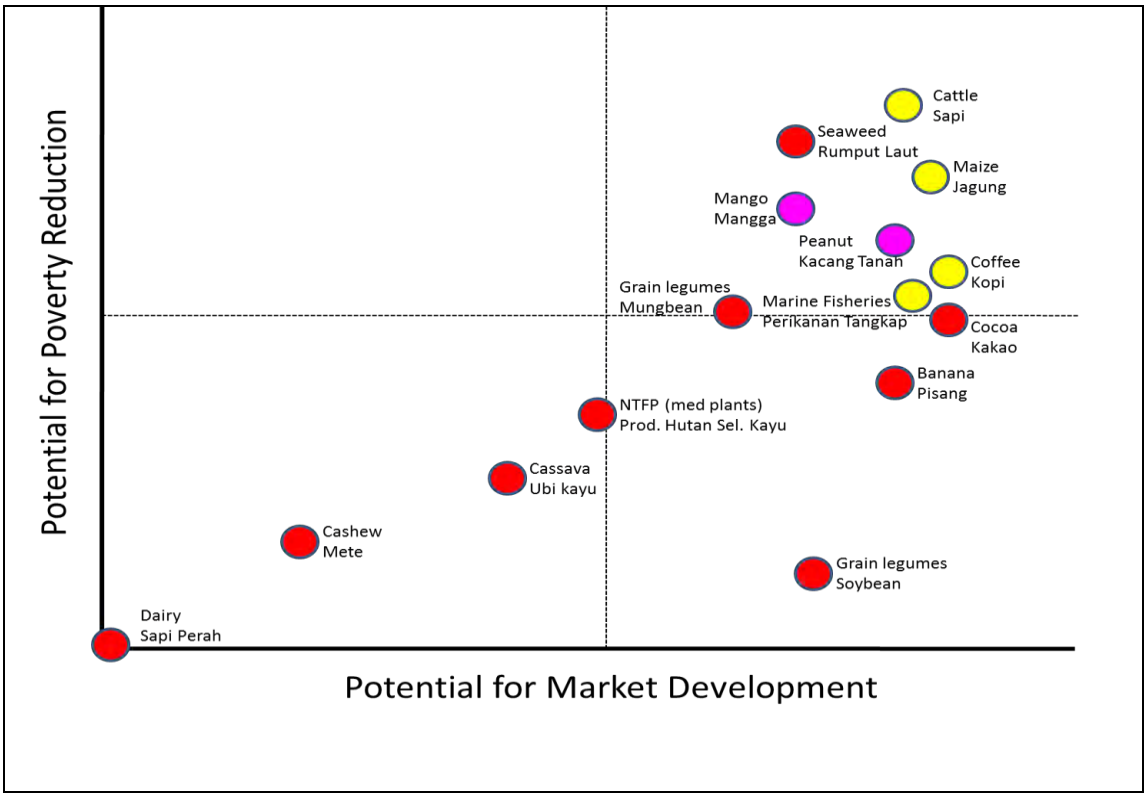


Figure 3: Commodity Prioritization for West Nusa Tenggara (NTB)

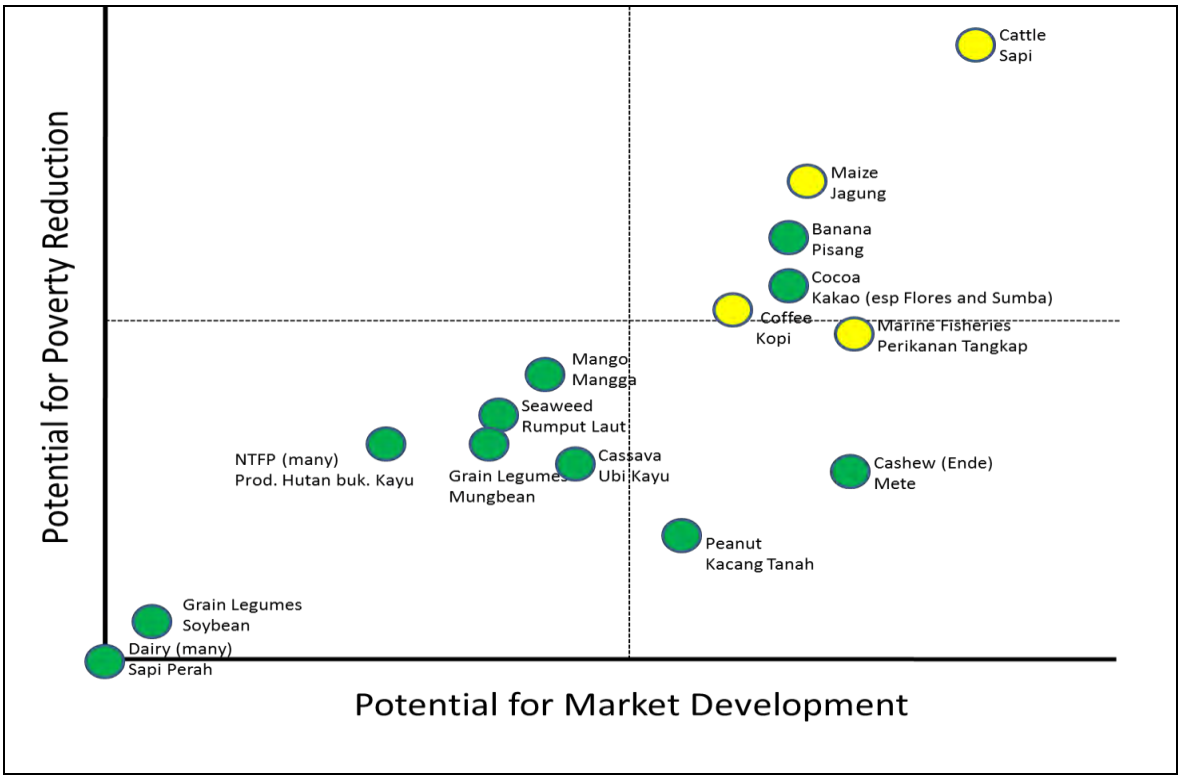


Figure 4: Commodity Prioritization for East Nusa Tenggara (NTT)

5.3.1 Where to from here

Peter Horne advised the group that with the initial review of the commodities in reference to each other now completed on a province by province basis, the project team will use this information as they rank the commodities over the next two months.

Over the next few months, further work on completing the technical commodity reviews will occur, along with the completion of the socio-economic review. All of this information will feed into the prioritisation and ranking process. The project Reference Group will meet in June or July and select the lead commodities.

Peter advised the workshop group that there would be further opportunity for input as the project progressed.

6 Final Comments

6.1 Project Reference Group

Pak Widi Hardjono

- There needs to be follow up action and see what needs to be done. Do we need performance indicators?
- How do we interact with the Government programs? Need to be wary of potential for duplication.
- Need to consider what is realistic for value adding: sometimes don't have the capacity to improve.
- Also need to be aware of overstating the market potential.
- Are we still looking at infrastructure? If so, we need to look at infrastructure that needs to be improved.
- Also need to consider the available capacity: district governments struggle to manage many programs coming out of many sub-sectors at MoA. Sometimes there is only one regional office and then difficult to take care of all the projects coming from the centre. There is also the issue of market networking, access to capital and access to information.

Pak Suyamto Hardjosuwirjo

- As was always emphasized by Pak Bunga when he was MoA, there is a need to promote agribusiness system development. The meaning of agribusiness is a shift in thinking from "harvest to sell" to "harvest to process to sell".
- Study need to specify what type of farmer is the target for increasing income: one farmer has land, another farmer rents the land, another is a wage labourer.
- How much percent increase in income are we trying to achieve? Need to increase income by at least 30%.
- Need to understand supply chain management of commodities, definitely across the three study provinces but also other provinces.
- Implementation issues: who should partner on the next project? Not only Bapeda but also Dinas Pertanian working on that commodity. Also need to consider that there are a lot of institutions involved in this meeting and I hope that these institutions will be involved in implementation.

- Also need to identify assisting private sector because they are very important in the market chain.
- Should identify role of company, cooperative and farmer in increasing income. In regards to BMT, why was the partnership not sustained?

Pak Luthfi Fatah

- Today we have been working hard and have a proactive result with our categorized 15 commodities.
- In this project we have applied different approaches to categorization. The first one was carried out by Teddy and then we have used the matrix and a fact sheet with criteria. It would be better if we used a scoring system and applied a weighting.
- Need to really apply a farm systems approach as usually farmers grow a mix of crops rather than just one, so this needs to be a consideration of the team - combine farmers and combine crops.
- Adaptability to unstable climate change – we haven't talked about this but this factor has a big influence on commodities e.g. mango because if the seasons are out of whack then the plants don't fruit.
- Consider the timing of the availability of different income sources – daily income verses harvest time income.
- Certain commodities have wide varieties: e.g. maize for consumption and maize for feed, Coffee - Arabica or Robusta, and there are wide varieties of Bananas.
- There is also a need to involve Dinas, research institutes and universities. These could be a source of appropriate technology.
- Need to keep the selected districts in mind. There is no point selecting a certain commodity at the province level if this commodity is not present in the selected districts.

Pak Ahmad Muktasam

- Some points have been covered by previous commentators.
- Important for us to compare commodities identified at provincial level that we have from Pak Teddy that we agreed on because there is a possibility there is a difference in terms of the commodities selected during the process of consultation at district level and today.
- Attention should be given to each district: coffee may not be relevant to one district but relevant to the other one. Certain products for each district should be taken into account.
- Also in terms of poverty pockets: possibility for a common product that we identify right now might be produced in an area with a high level of poverty incidence. Need to pay attention to specific district(s) with high incidence of poverty.
- More specific in-depth data collection needs to be done - a short visit to the area, even phone call. We don't have enough data for this analysis yet. There is a need for the team to go and get much more data.

- Participatory process should be done from the beginning of this process. Need to identify key stakeholders for every commodity that we agree upon and involve them in identifying the structure of this value chain. This will help build the program later on. This is important for us to do for the next step.

6.2 DFAT - Pak Rudy Prasetya

- Thank you to Bappeda, Dinas Daerah for coming: can I ask that this work keeps continuing, providing data and documents. The extension officers need to become partners in the AIPD Rural program.
- Commodities that will be selected through this study process will be the ones that have quick results: to accelerate increase in poverty reduction and adaptation of farmers.
- The AIPD Rural team will do more analysis and focus group discussion. We won't start with implementation straight away.
- Feel the process is going really well. There are some surprises e.g. I thought that seaweed would be higher up in the prioritization.

6.3 ACIAR – Mr Peter Horne

Peter Horne reiterated that from this analysis nothing is in or out yet, we are just collecting information and feedback that will help to direct our efforts.

Peter closed the meeting by thanking the workshop participants and recognised the spirit of Tim Purcell, acknowledging the great contribution that he made to instigating this project.

Attachment 1

Participants at the EI-ADO Consultation and Priority Identification Workshop

List of participants
Senggigi, 3-4 April 2012

No.	Name	Association
1	Ahmad Solehan	Bappeda East Java Surabaya, EJ
2	I Wayan Mudita	Faculty of Agriculture, Undana Kampus Baru Penfui, Kupang, NTT
3	John Berek	Head, Dep. Agric. and Natural Resources, Bappeda Kupang NTT
4	Kuntoro Boga Andri	BPTP Jawa Timur Malang, EJ
5	Karim Marassabessy	Bappeda NTB Lombok, Mataram, NTB
6	Ketut Puspadi	BPTP NTB Mataram, NTB
7	Luthfi Fatah	University of Lambung, Mangkurat *Project Reference Group member*
8	Ahmad Muktasam	Mataram University , NTB
9	Rani Noerhadie	DFAT Jakarta *Project Reference Group member*
10	Rosyadi Sayuti	Head of Bappeda NTB Lombok, Mataram, NTB
11	Suyamto Hardjosuwirjo	BPTP Jawa Timur Malang, EJ *Project Reference Group member*
12	Widi Hardjono	c/o Directorate General of Food Crops, Jakarta *Project Reference Group member*
13	Budi Septiani	Bappeda NTB Lombok, Mataram, NTB
14	Rudy Prasetya	IFC
15	Nurul Huda	Bappeda NTB Lombok, Mataram, NTB
16	Baiq Fitriah	Bappeda NTB Lombok, Mataram, NTB
17	Sita Ratih Purwandari	Dinas Pertanian Jawa Timur MB.
18	Frances Barns	ACIAR Jakarta *Project Reference Group member*
19	Mirah Nuryati	ACIAR Jakarta
20	Suliyanti Hakim	ACIAR Makassar
21	Rodd Dyer	ACIAR Canberra *Project Reference Group member*
22	Peter Horne	ACIAR Canberra *Project Reference Group member*
23	Teddy Kristedi	ACIAR Consultant, Jakarta

24	Stuart Higgins	Project Team Leader
25	Rouja Johnstone	Project Team
26	Stuart Brown	Project Team
27	Chaseley Ross	Project Team
28	Emmanuel Santoyo Rio	Project Team

Attachment 2

Meeting Agenda

Agribusiness Development Opportunities in Eastern Indonesia Consultation and Priority Identification Workshop

Yudhistira III Room
Santosa Villas and Resort
Senggigi, Lombok, 3-4 April 2012

Purpose - Stakeholder participation to present evidence and identify of commodity chain potential to improve the net incomes of a large number of poor farmers in NTT, NTB and EJ.

Tue 3rd April

7:45 am	Arrive - Tea and Coffee
8:00 am	Welcome by Dr. Ir. H. Rosyadi Sayuti, MSc , Head of BAPPEDA NTB (15 min)
8:15 am	Intro and purpose (10 min) - Peter Horne
8:25 am	Project overview and progress to date (15 + 5 min) - Rodd Dyer and Stu Higgins
8:45 am	Overview of provincial/district commodity and agribusiness priorities and strategies
	NTT (15+15 min)
9:15 am	NTB (15 + 15 min)
9:45 am	East Java (15 + 15 min)
10:15 am	**Break - morning tea (30 min)**
10:45 am	Building agribusiness links with smallholders - challenges and opportunities
	Budiono - Garuda Foods (20 + 10 min)
11:15 am	Overview of Provincial and District level consultation feedback - Teddy Kristedi (45 min)
12:00 pm	Discussion of selection criteria, prioritisation process and higher levels of stratification/filtering (45 min) see below.
12:45 pm	**Lunch (45 min)**
1:15 pm	Presentation and review of Commodity Briefs 1-8 (8 x 10 + 5 min).
	Presentation and facilitated discussion (Interactive scoring on potential impact and feasibility / likelihood of success matrix) - ADI
3:15 pm	**Afternoon tea break (20 min)**
3:35 pm	Presentation and review of Commodity Briefs 9-12 contd. (4 x 10 + 5 min) - ADI+
4:35 pm	Brief observations on commodity potential for poverty reduction and smallholder income improvement. Frances Barns (15 min)
4:50 pm	Short review of day - Reference Group members (2) (20 min)
5:10 pm	End
7:00 pm	**Dinner - Alberto's.**

Wed 4rd April (Day 2)

7:30 am	Depart hotel, Senggigi to visit peanut field sites in North Lombok
9:00 am	Arrive at field sites - examine crops performance of several treatments and discuss with co-operator farmers
11:00 am	Depart North Lombok for Sengiggi
12:30 pm	**Arrive hotel for lunch**
1:30 pm	Brief review of Day 1 - Reference Group member (2) (20 min)
1:50 pm	Presentation and review of Commodity Briefs 13-16 contd. (4 x 10 + 5 min) - ADI+
2:50 pm	Identification of omissions of commodities x district of potential concern for stakeholders - Mirah Nuryati (15 min).
3:05 pm	**Afternoon tea (25 min)**
3:20 pm	Presentation and review of Commodity Briefs 17-18 contd. (2 x 10 + 5 min) ADI+
4:00 pm	Review of Commodity Matrix in light of stratification, and risk (30 min)
	Review and highlighting commodities left out that may have single district or single province importance. Facilitated discussion.
4:30 pm	Where to from here. Expected milestones, and ways of communications. (15 min)
4:45 pm	Reference Group feedback (30 min)
5:15 pm	**Finish**
7:00 pm	**Dinner - The Square**

Participants Depart Lombok

Appendix 2: Selection of Lead Commodity Meeting, Sanur June 2012

AGRIBUSINESS DEVELOPMENT OPPORTUNITIES IN EASTERN INDONESIA

Project Reference Group Meeting:

lead commodity selection

Sanur, Bali

July 2012

Collins Higgins Consulting Group PTY Ltd.

Table of Contents

List of Tables and Figures

1 Introduction

1.1 Background

In 2011 ACIAR committed to the development and funding of a project: 'Analysing Agribusiness Development Opportunities in Eastern Indonesia' (EI-ADO). Through this study ACIAR is commissioning research to identify lead commodity value chains to be the focus of a new DFAT program: Australia Indonesia Partnership for Decentralisation – Rural Economic Program (AIPD-Rural). The EI-ADO project will be one of a number of short studies to be undertaken in 2012 to inform the AIPD-Rural program.

In 2012 the Collins Higgins Consulting Group was contracted to deliver the two phases of the EI-ADO project, due to conclude in March 2013. Broadly the activities associated with the project include:

- Preparation of 16 commodity literature reviews to inform the preparation of a detailed socio-economic review for the study provinces (Nusa Tengarra Barat (NTB), Nusa Tengarra Timur (NTT) and East Java (EJ))
- Detailed value chain analyses for 5 lead commodities that are considered to offer the most potential to reduce poverty in rural areas (not just farmers)
- Preparation of a final synthesis report that provides recommendations to ACIAR and DFAT on the value chains studied

1.2 Project Reference Group Meeting

1.2.1 Purpose

A meeting of the Project Reference Group was scheduled with the primary intention to select the remaining three lead commodities that are to be analysed in Phase 2 of the EI-ADO project.

1.2.2 Participants

Over the course of the two days a total of 24 people participated in the workshop. Those present included the project team, the project Reference Group, and a number of invited observers from organisations associated with the Project Reference Group. A list of the participants can be found in Attachment 1.

1.3 Workshop Summary

This section outlines the general discussions and key outcomes from the workshop. It is structured as per the workshop agenda, which can be found at Attachment 2. Key questions and their answers that were asked during the sessions are included as they provide important information relevant to the project and its scope of operation.

2 Welcome and Introductions

2.1 Dr Rodd Dyer

Rodd opened the meeting and provided an overview of the process that would be adopted for the two days. Peter Horne emphasised that the 5 commodities chosen in this meeting would not be the end of the project.

The discussion to come out of the introduction was around how this meeting fit with decisions and work done in the Lombok meeting. It was confirmed that beef and mango, already chosen from Lombok still needed to be endorsed, and most things were still up for discussion if need be.

One key outcome from the introduction was the identification and discussion of a number of higher order criteria that potentially could alter the selection of the final five lead commodities. These included: commodity coverage, land owners or landless, location in important poverty pockets, location in remote areas, risk/impact and horizon, gender importance, and potential for strong private sector partners. It was agreed that these be parked and discussed when the final recommendations were to occur, on day 2.

The group then introduced themselves and their contributing organisation.

3 Project update

Stuart Higgins led the discussion on the progress of the project to date.

3.1 Socio Economic Review

Emmanuel Santoyo Rio presented an overview of the key findings from the Socio Economic Review (SER). The group was provided the opportunity to ask questions and provide feedback to the project team.

The discussion during the SER overview was around the sources of data and reliability of government statistics. There were also discussions about detailed statistics that were thought to be missing – the resolution was that mostly this data does not exist but future work can look at filling these gaps. There was also clarification around how the SER was/would be used in the ranking system – it was stated that the commodity rankings were based on the commodity briefs and the specific literature reviews.

3.2 The Prioritisation Process

3.2.1 Weightings

Stuart presented an overview on the value of the weightings and how they were determined. The discussions around the weighting covered each criterion separately. Peter Horne also commented on killer criteria – something that may not have significant weighting to affect the ranking but for a particular commodity would be a go/no go point. Some questions came up about criteria that were not included – normally it was recognised that they were covered through another criteria or that they would be considered in the next phase of the study.

The proposed weightings applied to the criteria by the project team were modified slightly.

- Economic sustainability was eventually given a weighting of zero and more weight was added to the potential to increase income, as these were thought to be closely linked.
- Government priority criteria were confirmed with the project team that it was not restricted to 'provincial' government, and so the word was removed from the criteria heading.
- Economic sustainability. Questions over why this is weighted so low, since project outputs must be sustainable. Significant discussion and divergent views were aired on how to address economic sustainability, and so it was decided to move it to the side. It was agreed that the potential for smallholders to profit from the growth of the sector is closely linked with economic sustainability, so the economic sustainability criteria is to be deleted and its current weighting added to the potential to increase income. 5% of the weighting was also added to the environmental criteria.

The group discussed if they felt any issues were missed.

- Private sector impact is not in criteria. It was noted this is linked to other criteria in directly and will be captured in future activities and certainly in the field work.
- Gender issues are not mentioned though they are a large priority for DFAT. It was noted that gender is a cross cutting issue and the field work has processes in place to ensure both gender and environment are adequately addressed as they relate to each criteria, instead of being separated out.

The final weightings, as agreed by the Project Reference Group, are listed in Table 1 below.

Table 1. Criteria and Weightings

Criteria	Weighting	Rationale
Poverty alleviation and sustainability of the economic activity	**60%**	
1. Is there potential to reach large numbers of poor households in production and post-production?	30%	AIPD Rural goal to reach one million poor male and female producers in EJ, NTT and NTB over 10 years
2. What is the potential to sustainably increase income for producers?	30%	AIPD Rural goal is to increase incomes of poor male and female producers by 30% over 10 years
3. Does the chain/commodity fit with the focus of Government programs and priorities?	10%	AIPD Rural goal is to collaborate closely with Government of Indonesia's priorities and programs
4. How project-crowded is the sector? To what extent are sector needs addressed by current donors?	5%	Aims not to compete or duplicate, but to complement existing initiatives
5. What is the agro-ecological feasibility?	10%	The commodity should be well suited to the biophysical constraints of East Java, NTT and NTB
6. Is it environmentally sustainable?	10%	To assure project sustainability
7. External risks	5%	To assure project sustainability
Structure of the value chain	**40%**	
1. Is there potential for post-harvest productivity/ value-added?	30%	AIPD Rural supports better access to input and output markets
2. What is the potential for improving market access?	30%	AIPD Rural supports better access to input and output markets
3. What is the scalability and transferability potential?	25%	To ensure lessons learned from the study be up-scaled to the national level and the lessons learned transferable to other sectors
4. Is there sufficient infrastructure availability?	15%	To assure project feasibility

3.2.2 Scoring

Discussions then moved to scoring against the criteria. Specific commodity/criteria/score discussions were plentiful and mostly were resolved by project team or RG member. Often it was recognised that movements of scores for a criteria with a low weighting were not going to make significant changes to the rankings and the discussion was moved on.

Significant discussions arose around the priorities of provinces versus districts. It was resolved that at this stage in the study it is necessary to choose commodities that will have wide impact on large numbers of rural poor and district level priorities could be considered in a tier 2 stage of the study.

The group reviewed the score for each commodity and each criterion, to ensure they were logical for the commodity and then logical compared to other commodities.

3.2.3 Final Ranking

The final graph (see Figure 1) was displayed and discussion was limited to final comments as this was to be the next day's objective. It was continually emphasised that this study was to focus on province level priorities and further work by AIPD rural might consider district level priorities.

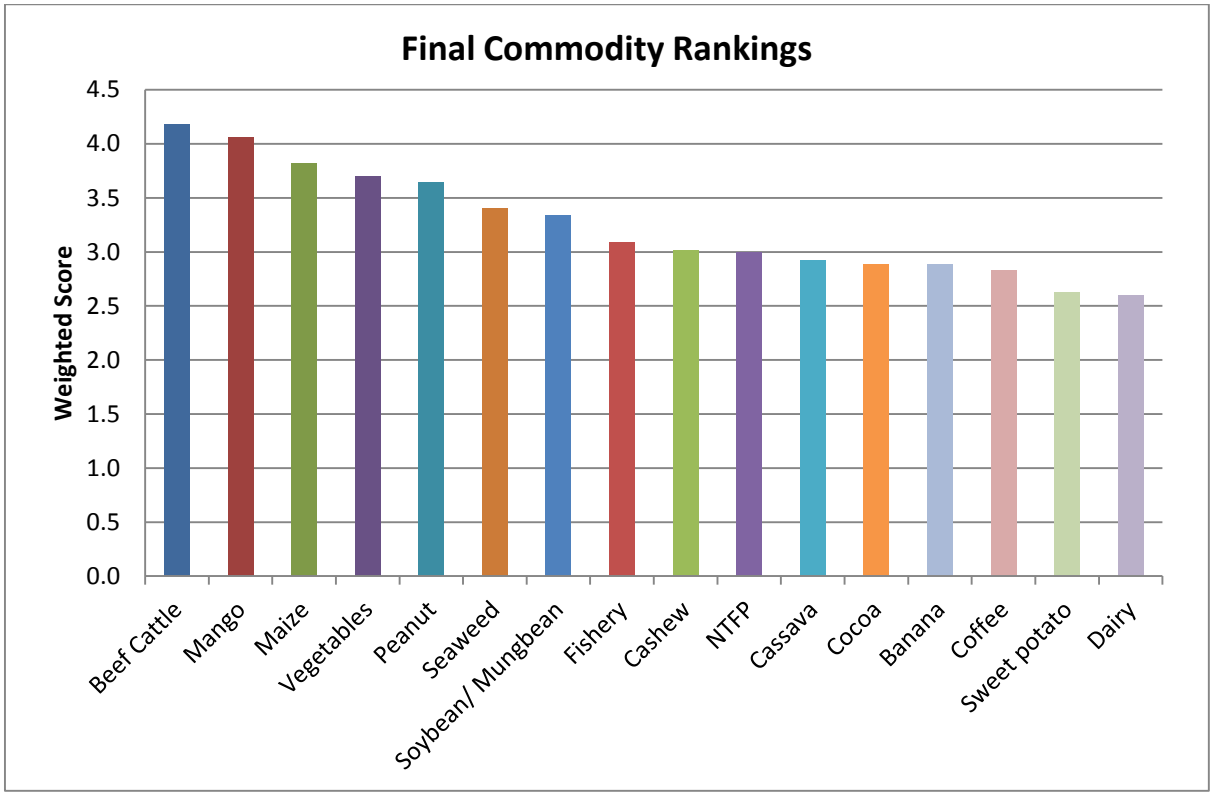


Figure 1. Final Commodity Rankings

4 Selection of Lead Commodities

Day two commenced with a review of where the discussion reached on day 1 and the commodity rankings. There was ongoing discussion from some in the group about province verses district level priorities, and should this project be selecting commodities at the district level. This was resolved by clarifying that future work may consider district level issues and even if all top 5 commodities are not priorities for every district they will at least be covered by some of the 5.

It was suggested that legumes could be grouped – discussions around how this would work in terms of the detailed value chain analysis were left to be determined by the project team and ACIAR. This was the same for the vegetable grouping.

4.1 Overarching Criteria

The issue of the overarching criteria from day one was again raised, now that a draft ranking had been presented. The list of overarching criteria was revisited and identified as those criteria with the potential to have a big impact on only a few commodities:

- Land owning/landless
- Poverty pockets

- More remote areas – compared to tendency to choose easily accessed areas
- Risk/benefits
- Gender
- Potential for private sector partners

It was agreed that the Project Reference Group hold a closed session to discuss and agree on the five lead commodities to be studied in Phase 2 of the EI-ADO project, and that they would consider these overarching criteria against each commodity when making this determination.

4.2 Closed Project Reference Group Session

A closed session was then held by the Project Reference Group to make the final determination. The group elected members Fred Benu and Widi Hardjono as the co-chairs of the session.

Beef, mango and maize across the three provinces were quickly agreed as priority inclusions. It was discussed whether a legume category should be created to pick up peanuts, mungbean and soybean, with the justification being that they have very similar production cycles. This was agreed. Much discussion was had over whether seaweed was to be the fifth commodity over vegetables or legumes. In the end, it was decided that seaweed was to be a key priority recommendation for DFAT's Tier 2 research. Figure 2 shows the final commodity selection.

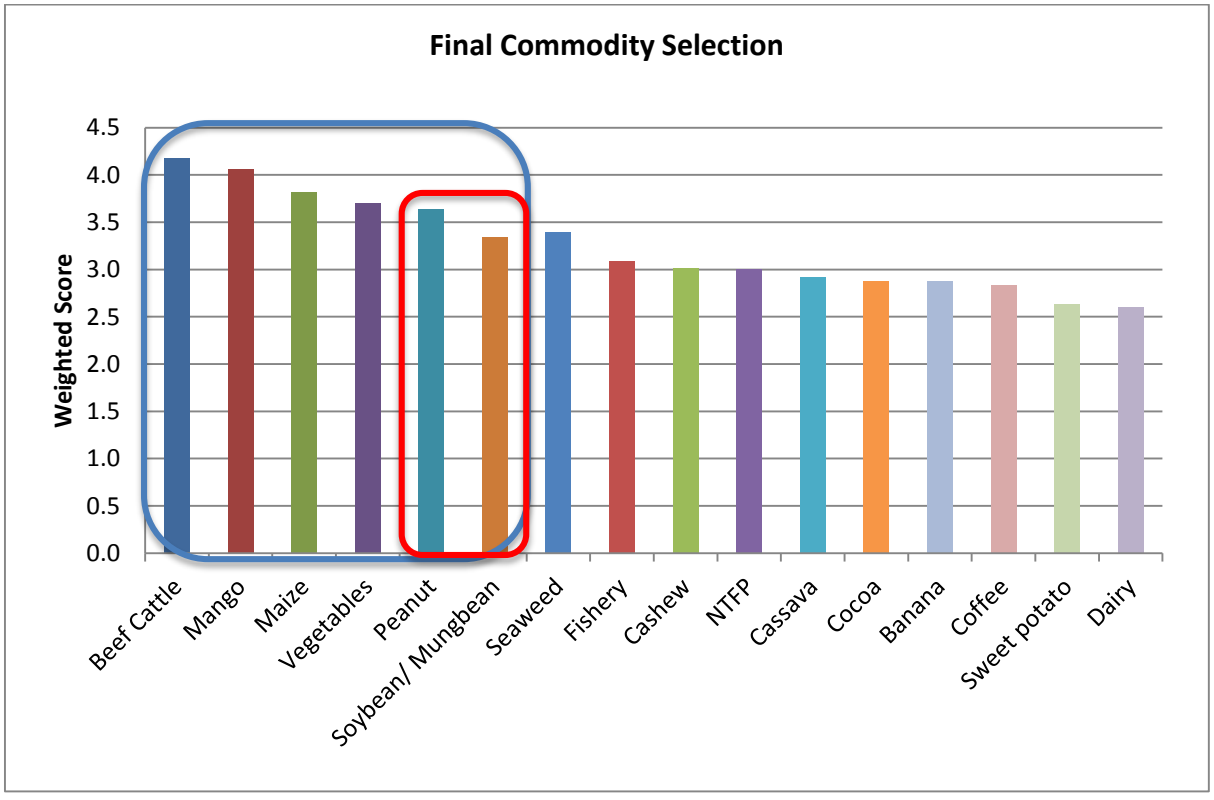


Figure 2. Final commodity selection

The reference group even ventured into discussing proposed tier 2 commodities with the DFAT representatives. Those suggested (with no formal vote or consensus) included – coffee, seaweed, cassava, cocoa, sweet potato and poultry.

The other meeting participants were called back to the meeting and the Co-Chairs Fred and Widi informed the group of its decision regarding the 5 lead commodities for EI-ADO.

5 Where to From Here?

An overview of the workplan and fieldwork timings was presented. DFAT mentioned the possibility of collecting some tier 2 data while the team was conducting the tier 1 analysis. This was not resolved and will require further consultations.

It was also decided that another RG meeting would be best before the scheduled February meeting. The project group proposed that the RG could meet to have a preliminary presentation following the field work from the first value chain analysis. This was agreed for mid-October in Bali.

The meeting was formally closed by Peter Horne. In doing so, he recognised that the project was an unusual arrangement between ACIAR and DFAT, being sister organisations. Frances Barnes (ACIAR) commented that she was impressed with the standard of the RG. Jim Tomecko (DFAT) made the observation that he felt very comfortable moving ahead with the five selected commodities, and this is not the end of the process. He thanked ACIAR and the RG.

Attachment 1

Participants at the EI-ADO Selection of Lead Commodities Workshop

List of participants Sanur, 20-21st June 2012		
No.	**Name**	**Association**
1	Widi Hardjono	c/o Directorate General of Food Crops, Jakarta *Project Reference Group member*
2	Prof. Fred Benu	University of Nusa Cendana, Kupang NTT *Project Reference Group member*
3	Luthfi Fatah	University of Lambung, Mangkurat *Project Reference Group member*
4	Prof. Ahmad Muktasam	Mataram University , NTB *Project Reference Group member*
5	Prof. Suyamto Hardjosuwirjo	BPTP Jawa Timur Malang, EJ *Project Reference Group member*
6	Agus Edyawan	The Asia Foundation
7	Ernest Bethe	IFC *Project Reference Group member*
8	Rahmad Syakib	IFC
9	Rani Noerhadie	DFAT Jakarta
10	Daniel Nugraha	DFAT *Project Reference Group member*
11	Jim Tomecko	DFAT
12	Dr Achmad Dimyati	Puslitbang Hortickultura, Jakarta *Project Reference Group member*
13	Esnawan Budisantoso	DFAT
14	Nasokah	The Asia Foundation
15	Frances Barns	ACIAR Jakarta *Project Reference Group member*
16	Suliyanti Hakim	ACIAR Makassar
17	Rodd Dyer	ACIAR Canberra *Project Reference Group member*
18	Peter Horne	ACIAR Canberra *Project Reference Group member*
19	Rebecca McBride	ACIAR Canberra
20	Teddy Kristedi	ACIAR Consultant, Jakarta
21	Stuart Higgins	Project Team Leader
22	Rouja Johnstone	Project Team
23	Chaseley Ross	Project Team
24	Emmanuel Santoyo Rio	Project Team

Attachment 2

Meeting Agenda

Recommendation and Selection of Lead Commodities

Mercure Sanur Bali

20th/21st June 2012

Purpose - to select 5 agricultural commodity value chains with the most potential to increase incomes of poor men and women (not just farmers) in East Nusa Tenggara (NTT), West Nusa Tenggara (NTB) and East Java.

Wed 20th June

12:30pm Arrive, Lunch

1:15pm Welcome and introductions – Rodd Dyer

Workshop program and process – Rodd Dyer

2.00pm Update on activities and outputs – Stuart Higgins

- Update on socio-economic review – Emmanuel Santoyo Rio and Rouja Johnstone

2:40pm M4P prioritisation process – presentation and discussion (CHCG)

- Brief overview of M4P Framework
- Example ranking process using one commodity
  - Selection criteria definitions
  - Weighting (%)
  - Scoring (1-5)

3:30pm Break – tea and coffee at meeting table

4:00pm Presentation and discussion of commodity rankings by criteria (CHCG)

- Poverty and sustainability indicators
- Structure of the chain indicators

6:00pm Review and reflect – Reference Group feedback

Review of process for tomorrow

6:45pm End

7:30 pm Dinner

Thurs 21st June (Day 2)

7:45 am Arrive, tea and coffee

8:00 am Key points from day 1 and purpose of today's session

8:30am Presentation of commodity scores and rankings (CHCG)

- High ranked commodities
- Low ranked commodities
- Borderline commodities

9:30am Discussion - including options for stratifying lead commodities

10:30 am Morning tea (15 mins)

10:45am Reference Group discussion and recommendation of lead commodities

11:45am Where to from here (CHCG and ACIAR)

- Work plan overview
- Value chain training
- Lead commodity value chain studies
- Commodity and synthesis workshops
- Deliverable dates
- Papua and West Papua
- Poverty study

12:00pm Close

12:15 pm Lunch and finish

Appendix 3: Monthly Project Updates Distributed

Project Update, May 2012

Eastern Indonesia agribusiness development opportunities - socio-economic review and prioritisation of lead commodities

The purpose of this update is to provide an overview of the project activities since the April Lombok meeting, and outline the proposed activities and process going forward to the June Project Reference Group meeting where final commodity selection for the detailed value chain assessment will occur.

Current activities:

Activities	Completion date
Commodity literature reviews: completing and finalizing the 15 commodity literature reviews, the summaries of which were presented in Lombok	30 May 2012
Workshop capture: Writing up the outcomes and discussion from the Lombok workshop	15 May 2012
Data collection for the socio-economic review. The role of this information is to underpin the selection process of commodities for the detailed value chain work. Data being collected includes general district and province statistics, demography, profile of Rural Households, Poverty, Agri related infrastructure, and agricultural and agribusiness production and processing statistics.	End of April 2012

Future activities:

Looking forward, the future activities and timing include:

Activities	Due date
Socio – economic review/weighting: The comprehensive data collected from the districts and provinces will be analyzed by the project team. This information will then be combined with the information collected by the country team in the series of province meetings and the commodity prioritization graphs that the Lombok workshop participants developed. Using all of this information, and guided by the process outlined in the 'Markets for the Poor' handbook, the project team will then apply weightings to the assessment criteria (presented at the workshop) and develop a draft list of commodity recommendations for the detailed value chain assessments.	Early June 2012
Reference Group meeting: Presentation of socio economic analysis recommendations by the project team, and confirmation by the Reference Group on the selected commodities for detailed value chain assessments.	20-21 June 2012
Development of detailed field work manuals and resources: These resources will be crucial to support the data collection activities of the value chain work, so as to limit the gaps in data that pose a risk to the value chain analysis.	Late June 2012
Value Chain training: Training in the skills and process to collect data to conduct a value chain analysis will be provided to invited participants across the selected commodities to support the detailed value chain assessments.	late June/early July
Value Chain field work: Will start immediately following Ramadan on two of the selected commodities. Local work to organise meetings, travel arrangements, etc to support this activity will commence following the value chain training. This work will then continue through til December 2012 to complete all 5 value chains.	Following Ramadan

Further information: Project team leader Stu Higgins on stuhiggins@bigpond.com

Project Update, July 2012

Eastern Indonesia agribusiness development opportunities - socio-economic review and prioritisation of lead commodities

The purpose of this update is to provide an overview of the project activities during the period May-June 2012, and outline the proposed activities and process going forward to the July Value chain training workshop, where training for the to-be-deployed value chain analysis teams will occur.

Activities undertaken during the period:

During the period from May to June 2012, the team has been engaged in a number of activities:

Activities	Completion date
Commodity literature reviews and briefs: 16 commodity literature reviews and their summary briefs were completed and presented to the project Reference Group (RG) meeting in Bali in June.	completed
Socio – economic review: The comprehensive data collected from the districts and provinces was collected and analyzed by the project team and a draft report and key findings presented to the RG meeting. Additional data sources	Draft completed, final report due 31st July
Reference Group meeting to select the lead commodities: The information from the socio-economic review and commodity literature reviews and briefs, combined with data collected by the country team in the series of province/district consultations earlier this year were all presented to the RG at a meeting in Bali on 20th and 21st June. The key objective of this meeting was to select the five commodities that would be investigated in detail through value chain analysis. The below section outlines the selection process and outcome reached.	20-21 June 2012

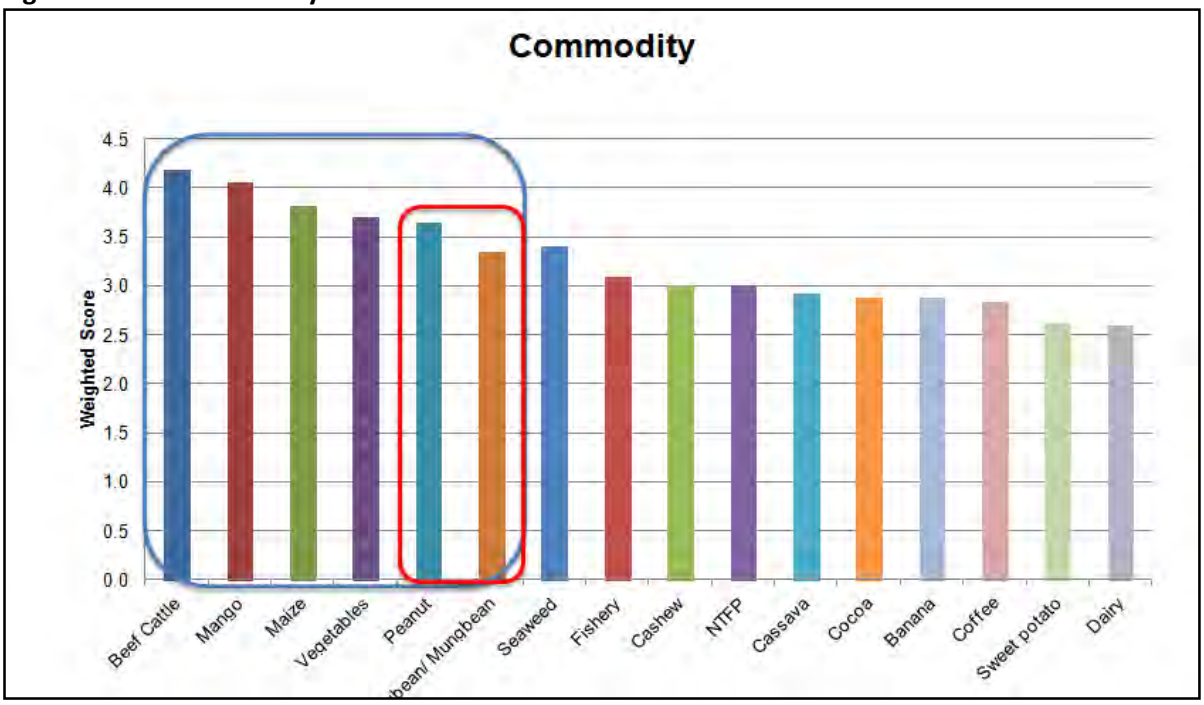
Lead Commodity Selection Process and Outcome:

On day 1 of the RG meeting, the project team revisited with the RG the selection criteria and presented an overview of their assigned weightings and the draft scores for each commodity by criteria. The RG was asked to test the logic of the draft scoring assigned by the project team. Where robust information was presented, some scores were modified. The project team explained to the group that information from the socio-economic review and commodity literature reviews and briefs, combined with data collected by the country team in the series of province/district consultations formed the evidence base for the relative score assigned to each commodity and criteria.

The RG identified and discussed a number of higher order criteria that potentially could alter the selection of the final five lead commodities. These included: commodity coverage, land owners or landless, location in important poverty pockets, location in remote areas, risk/impact and horizon, gender importance, and potential for strong private sector partners.

A closed session was then held with the RG members, who considered the commodity rankings and the higher order criteria outlined above. The RG selected the five lead commodities during this session. These are: beef cattle, mango, maize, vegetables and grain legumes. (Grain legumes comprises soybean, mungbean and peanut. During the discussion it was determined these should be considered together due to their similar production systems.)

Figure 1: Final Commodity Selection



Future activities:

Looking forward, the future activities and timing include:

Activities	Due date
Value Chain training: Specialist value chain training in the skills and process to collect data to conduct a value chain analysis will be provided to invited participants across the selected commodities and provinces.	9- 13 July 2012
Establishment of field work teams and development of detailed field work manuals and resources: Following the workshop, commodity teams will be established based on skills, provincial knowledge and workplan requirements. Resources that will be crucial to support the data collection activities of the value chain work will start to be developed at the value chain training and further refined by the teams over Ramadhan, before teams are dispersed into the field. This is important to limit the gaps in data and ensure consistency across value chains.	July – August 2012
Mango value chain field work: Will start in the last week of August, following Ramadhan. Local work to organize meetings, travel arrangements, etc to support this activity will commence following the value chain training.	Following Ramadhan
RG meeting: to discuss draft findings and lessons learned from the mango value chain field work.	Early - mid October 2012
Value chain specialist team meeting and remaining field work: Prior to the field work for the remaining 4 value chains commencing in late October, the International and National Value Chain Specialists will meet and discuss the lessons learned from the mango value chain and update any field work tools as required.	Early - mid October 2012

Further information: Project team leader Stuart Higgins on stuhiggins@bigpond.com *or* ACIAR Project Coordinator Teddy Kristedi on kristedi@gmail.com