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Studies on Smallholder Tree Crops Production and Poverty Alleviation

ASEM Grant TF. 024891

Methodology Report

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Introduction

The Government of Indonesia received a grant from the ASEM-EU Asian Financial Crisis Response Fund (TF-024891) and applied part of the proceeds of this grant to studies on Smallholder Tree Crop Production and Poverty Alleviation. Consultants service was required to conduct a survey in Indonesia on the socio-economics of smallholder tree crop producers, and the access of the producers, in the post-crisis era to: credit, new land suitable for tree crops, improved planting materials and technologies, labour, markets and information.

1. Justification: The need for an up-dated tree crop sector studies

The traditionally export-oriented smallholder sector makes out about 80% of the tree crop sector in Indonesia. Tree crops have been seen as one of the rare sectors that might have somehow benefited from the crisis, which started in 1997 in Asia and severely hit the country economically, socially and politically. In a time of high international prices boosted by the climatic disorders due to El Nino, the small holder tree crop producers have seen the local prices experience huge increase resulting from the rapid devaluation of the local currency. However, from the end of 1999 the tendency progressively deteriorated mostly due to the constant decline of the tree crops world prices. Several surveys of smallholder tree crop farmers conducted in selected areas indicate that the true outcome for tree crop smallholders was much more diverse and by no means uniformly positive.

Besides macroeconomic variables such as world price and exchange rates, the welfare of individual smallholder tree crops farmers appears also to depend on other factors. Past access to improved planting materials and techniques, security of land holding, labour constraints, financing options, and regulatory constraints¹ are among the most important. However, these vary substantially across households, regions and commodity.

Furthermore, the newly implemented decentralization gives local governments increased authority to determine economic growth strategies. Key among these, especially for a large number of outer island local governments, will be whether to put emphasis on smallholder tree crop producers or on larger-scale estate producers, primarily for palm oil. A smallholder strategy can result in greater economic diversification and resilience, and better social and equity outcomes, but it is more institutionally complex to implement, and it would be less likely to contribute for some time to local tax revenues, when compared with estate investment options. For most tree crops, Indonesia has relied on development projects, which have merely benefited a very small proportion of all smallholders engaged in these commodities. Today, public finance constraints are unlikely to allow substantial progress on coverage through such projects.

The evidence of a great variability in the welfare of smallholder producers of tree crop, is challenging the capacity of local governments to make strategic choices about economic growth options including what weight to give to promoting these smallholders at a time when local authorities become increasingly responsible for local development.

¹ Trade and regulatory constraints affecting tree crops since a deregulation initiative was implemented by Government in 1998 were analyzed as part of the *Persepsi Daerah* study (SMERU, 1999)

It is thus imperative to take a hard look at simpler, more decentralized and self-reliant approaches to smallholder investment in tree crops, and the most effective ways to overcome the constraints they face.

2. Methodological requirements

As indicated in the TOR², the main objective of the study is *to inform strategic choices related to the promotion of tree crop smallholder for poverty alleviation, and by doing so, to provide a more detailed and geographically widespread understanding of the economics of smallholder tree crop production.* The purpose is *to address a number of policy issues that are of immediate relevance to both national and local governments and donors that are involved in smallholder tree crops* such as the ADB, JBIC and IFAD.

Key among these, the following questions were raised in the TOR:

- How sustainable, competitive and resilient are the tree crops smallholder systems?
- What are the factors that limit smallholders' economic welfare?
- What institutional and organizational models – e.g. cooperative promotion, nuclear estate and smallholders, project management unit – do best to meet smallholders input/output marketing needs?
- How does security of land access affect investment in, and maintenance of, tree crops for smallholders?
- What services do smallholder tree crop producers give priority to, how do they view their access to alternative providers, and what preferences do they have for public or private delivery?
- What are the existing and potential markets for smallholder tree crops products and how to improve the access of smallholders to these markets?

So as to fulfil this objective, the TOR specified, "The studies would consist of a baseline household survey of smallholder tree crop producers. In the longer-run research perspective, this baseline household survey will be used to establish a longitudinal (panel) study on smallholder tree crop producers. Thus, its breadth of geographic, commodity, and survey questionnaire coverage would distinguish it from available, but more limited surveys."

More precisely, the methodological requirements as defined under the label "components of the survey" were:

- ✓ A quantitative household survey to be implemented in three to four provinces and covering at least five tree crops (oil palm, coconut, rubber, cocoa, coffee, cashew nut) and 250-350 households per province
- ✓ Analysis of the results, including an assessment of appropriate government policies to alleviate constraints that are identified
- ✓ A qualitative panel survey tree crops to delve deeper into the issues especially in relation to the environment of smallholders, using group discussion, interviews of key informants, household in-depth interviews, and field observation
- ✓ Dissemination of the results through workshops targeting government and farmers' organizations at various levels

² See "Studies on Smallholder Tree crops Production and Poverty Alleviation, ASEM Grant TF. 024891, Terms of Reference for International Consultants, October 2001".

3. General approach and key concepts

a. Studies proposed components

In response to these requirements CIRAD sent a technical proposal³, which after evaluation by a selection committee was finally approved. This proposal included the following components:

1. a bibliographical review of existing studies of the smallholder tree crops economy at national and regional level;
2. based on the review results, a prospective analysis on determining factors for the future of three crops in Indonesia prior to field work, in order to better identify the elements to be included in the questionnaire and the sampling methods;
3. a quantitative household survey representing key areas for the selected tree crops;
4. a more limited qualitative survey of key stakeholders, such as local Government institutions, developments banks, traders...
5. the analysis of the results on the aspects above, including the identification and discussion of options for government policies to alleviate constraints that are identified;
6. the feed-back and discussion of results through multi-stakeholder workshops involving national and regional governments, farmers' organizations, NGOs, private companies, small enterprises and banks.
7. recommendations for follow-up surveys and activities, to help delve deeper into the issues emerging from the quantitative survey and the workshops.

b. From "production and poverty alleviation" to "growth and equity"

Rapidly after the Technical Proposal formal approval by the World Bank, several meetings were held by the international and national team members to refine the approach and concepts to be used during the implementation of this project.

As a result, a consensus rose among the participants to switch from "production and poverty alleviation" to "growth and equity". The reason lied mainly in the need to provide a conceptual framework that could be turned into an operational method to provide evidence on the specific situation of tree crop smallholders within the tree crop sector and within the national economy.

It was felt that the underlying idea behind this studies proposal was to find ways to efficiently promote smallholder development in the tree crop sector as a means to increase welfare level both quantitatively and qualitatively. With this perception, "production" was too limited a concept to cover quantitative increase of welfare, since this was not only to be considered as a mere gain in productivity or planted area but also as a contribution to the local and national economy. The concept of "growth" was felt more relevant for this purpose, since by being less specific to the agricultural sector, it would allow to compare contribution of different sectors and, within the tree crop sector, contribution of various production systems.

³ See "Studies on Smallholder Tree crops Production and Poverty Alleviation, ASEM Grant TF. 024891, Technical Proposal, November 2001".

Similarly, “poverty alleviation” was not considered as the most appropriate concept, being too narrow to address welfare improvement from a societal point of view. Classical economics tells us in effect that Pareto-optimum situation can occur, where all economic agents see their income increase, and at the same time income disparities increase. The concept of “equity” fits better to take into consideration this redistribution dimension. Likewise the growth concept, it has the virtue to allow cross sector comparison as well as comparison between various production systems.

Furthermore, the combination of these concepts provides a useful analytical framework to qualify the type of policies as indicated below.

Table 1. A matrix for growth and poverty analysis in the smallholder tree crop sector.....

		Equity		
		Higher	No change	Lower
Growth	Increase	Development	Growth	Polarisation
	No Change	Redistribution	Status Quo	Social Recession
	Drop	Social Reform	Social Protection	Recession

Higher equity policies:

Development means an increase in the size of the pie and the share that is given to the lower income category in order to improve the global welfare and reduce the welfare levels gap.

Redistribution is understood as a policy reducing the gap in the distribution of welfare equity, while not achieving significant growth.

Social Reform is an equity policy in a negative growth context, where the welfare gap is reduced through dispossessing higher welfare groups and sharing their assets with other groups.

No change equity Policies:

Growth means that the policy targets global output increase without significant change in its distribution.

Status Quo designs policies that do not alter welfare distribution and do not affect growth. It also can be assimilated as the absence or inefficiency of specific policies.

Social protection corresponds to policies maintaining the welfare distribution at the detriment of output growth.

Lower equity policies:

Polarisation relates to policies promoting the welfare gap in a global welfare increase situation.

Social Recession relates to policies where welfare distribution gap increases (the lower income category loses its assets/income) while there is no growth of global output.

Recession corresponds to policies aiming at a reduction of global output accompanied with a wider gap between welfare levels.

The need of combining these concepts to define the methodological basis of the studies is not questionable. In the table above the strategic choices in order to address policy issues of immediate relevance to both national and local governments and donors that are involved in smallholder tree crops appear clearly: policies that fail to promote growth and equity, the likely result is stagnation or recession, as it happened to the rice sub-sector in Indonesia in the 90s, or in the clove production sector where floor price policies failed and production drastically dropped in the 90s. Promoting growth and not equity would lead to a likely polarisation where a group of agents developed while other groups regress such as in the case of private sector investment in oil palm). No growth and increased equity corresponds to only redistribution policies usually associated to land reform for example, which are likely to lead to conflicts. Finally, the policy pattern where growth and equity increase simultaneously would likely lead to a genuine development where increased redistribution is smoothed and made acceptable by increased benefits.

As a consequence, the project team agreed to use growth and equity as the framework to be referred to for the definition of the research question, indicators, data collection and analysis.

Thus, considering that the promotion of smallholder tree crop corresponds to a higher equity policy in the tree crop sector, but could be questionable in terms of growth of output, the research question to be addressed in this smallholder tree crops studies is the following: **Under which conditions is it possible to make the tree crop smallholder population in Indonesia to significantly contribute to growth without widening or creating a welfare imbalance?**

d. Implementation of the growth/equity framework

A reflection was developed by the Team members to translate this conceptual framework and research question into an operational methodological approach. This reflection dealt with two key issues: refining the concepts of growth and equity through a set of indicators and exploring alternative ways to collect data needed for the construction and interpretation of these indicators.

The first point is of special importance since it makes the link between an abstract framework and the practical implementation of the research work. A discussion of what we perceived by growth and equity led to agreed upon that the performance of the tree crop sector could not be rated only as a quantitative contribution to growth through increased output (either by means of increased yield or increased smallholder plantation). It has also to be rated in terms of welfare distribution, both in terms of absolute welfare level and relative welfare gap. It was felt that promoting smallholder tree crop could lead to an imbalanced development if polarisation, social recession or recession policies were at work. Therefore, it was necessary to also clearly

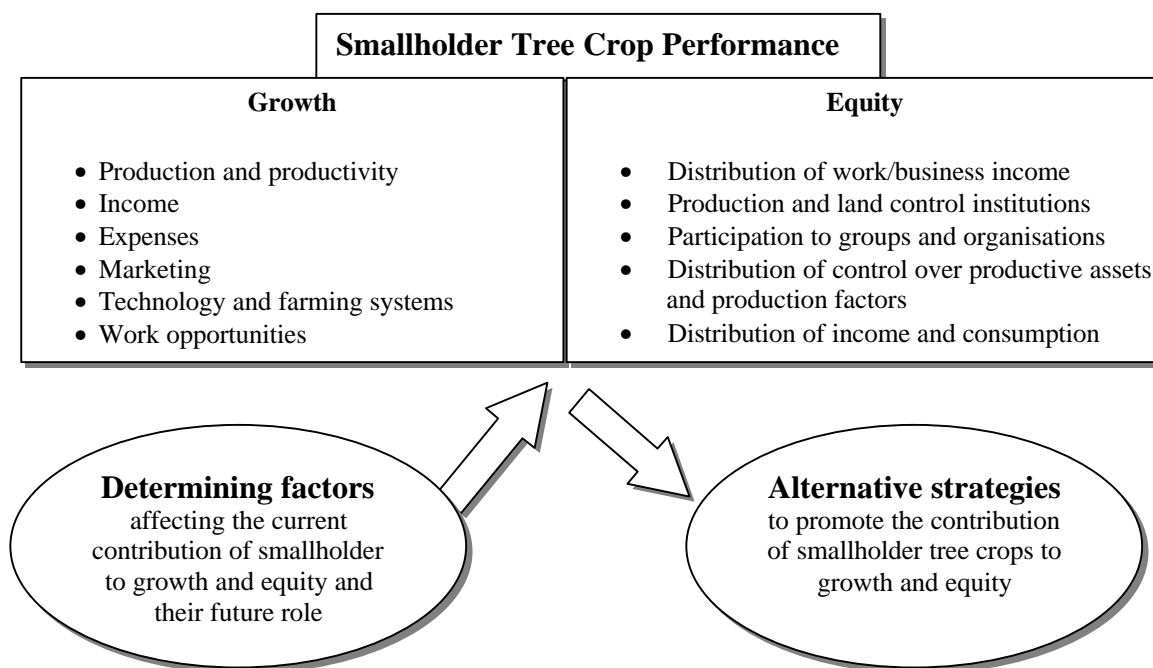
establish equity indicators. Two more points were included in this reflection. One was that a multi-level approach was required beyond the smallholder household level, due to the distribution dimension in the equity concept and the contribution dimension of the growth concept. The other was the need to develop more than a static view of the current situation of tree crop smallholders. A vision of the current dynamics was necessary as well as the possibility to monitor *in situ* future evolutions and discuss possible change.

In summary, to be properly implemented our analytical framework needed to be:

- ✓ dualistic and dialectic in the relation between growth and equity
- ✓ dynamic and multi-level
- ✓ prospective and comparative

This framework leads finally to the question of the factors that can explain the current situation and potential for change of the tree crop smallholder sector. It is represented schematically in the figure 1 below.

Fig. 1. Synthetic framework of the studies.



In order to analyse smallholder contribution to growth and equity, the above-mentioned components are represented by a set of indicators as displayed in the table below. To quantify and qualify these indicators, data is needed. Data is to be obtained through three approaches: literature review, stakeholders meeting and quantitative and qualitative field surveys.

Table 2. Growth and equity indicators

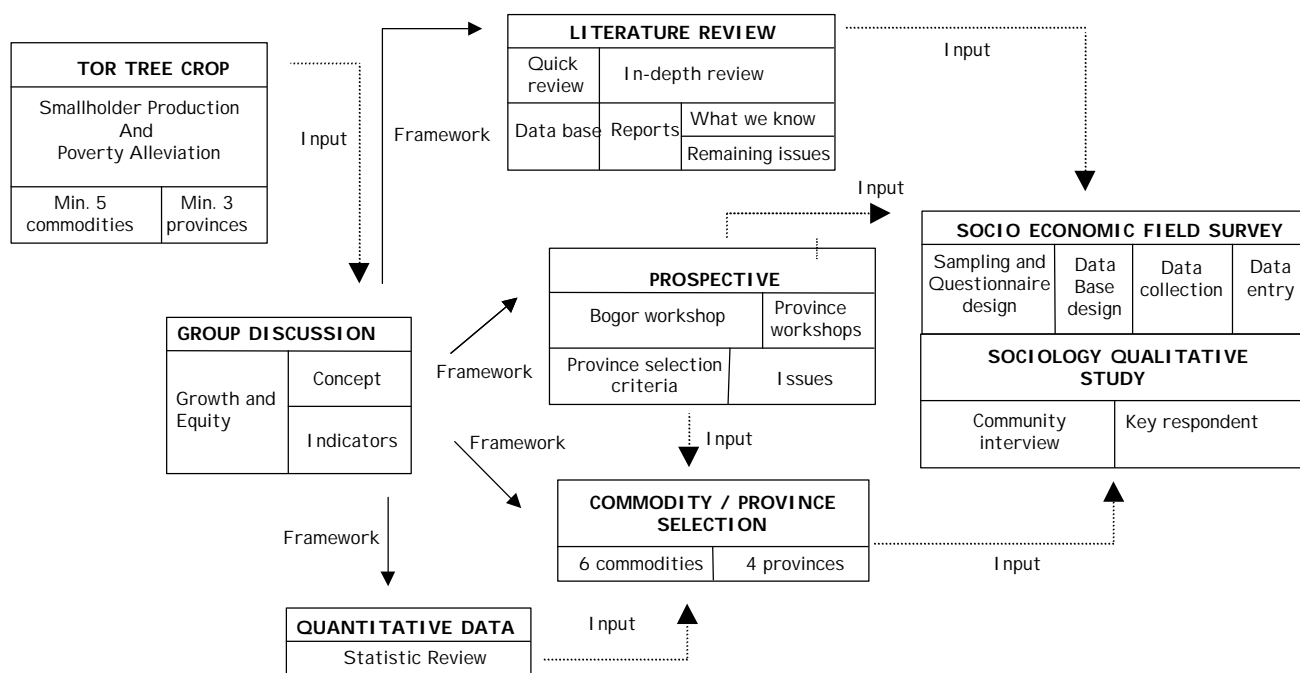
Component	Indicators	Type of data
GROWTH		
Production	Quantity	Total and household production per commodity/system
	Type of product	Type and quality of harvested product
Productivity	Yields	Production, Area
	Productivity of labour Return to investment	Labour cost and use Investment, production costs
Technology	Use of planting material	Type of varieties planted Availability of planting material
	Technological pattern	Type, quantity and frequency of input use Use of cover crops, weeding, spraying, IPM... Harvesting techniques Post harvest handling
Marketing	Margins	Production costs, market prices
	Access to market information	Sources and quality
Income	Tree crop income	Quantity and price of inputs Price of output
	Other agricultural income	Taxes, interests, retributions,
	Non agricultural income	Type of off farm job Costs and gross income
	Share of tree crop income in household income	Income per type of activity
Household expenses	Basic food and needs	Detail of consumption pattern according to various categories (food, health, education...)
	Other expenses	Detail of non basic food and need expenses
EQUITY		
Distribution of job or business opportunity	Livelihood pattern	Combination of working activities Labour invested in agriculture
Production and land control institutions	Wages Harvesting shares	Price of labour per type of work Harvest practices
	Land ownership	Land status Land rights Land conversion Government's rule
Participation in group and organization	Empowerment level	Type of organisation and level of participation
Distribution of control over productive assets	Land control	Area per type of land Status Land value
	Input use	Type, origin, choices, availability, access, payment, price
	Equipment	Type, origin, choices, availability, access, payment, price
	Investment/capital	Type, source, amount, frequency, interest Repayment pattern Conditions Credit needs
	Information and extension	Type, source, choice, availability, quality
	Off farm assets agriculture	Type, quantity, value of the asset
Income level and distribution	Poverty level (BPS, 2100 cal/cap/month calculated in rupiah)	Household income, household consumption, household composition
	Gini coefficient	Household income
	World Bank Income share of poor household	Household income
	Average	Income from all households Size of income groups

The complete methodology sequence as defined in the TOR and finalised by the Team includes the following steps:

- ✓ Concepts discussion and definition
- ✓ Literature and Quantitative data review
- ✓ Stakeholders workshops and consultations (prospective, discussion of results)
- ✓ Field Survey (quantitative and qualitative)
- ✓ Analysis (data processing, discussion, synthesis)
- ✓ Reporting

The links between these different elements are displayed in the figure below.

Fig. 2. Links between the different components of the methodology



4. Methodology implementation

The discussion of concepts has been presented in the former chapter. We will focus hereafter on the practical implementation steps that followed and enriched these concepts.

a. The literature review

It aimed at establishing a state-of-the-art of what was known at the start of the project. This literature review was organised as a two-step approach. The first step entailed the collection, quick review and storage of hundreds of national and international references. These references included both a commodity focus and an issue focus. The commodity focus covered the six selected tree crop, and the issue focus embraced poverty/sociology and policy. A format for quick review and data entry was created in consistency with the growth/equity analytical framework (see Annex 1). All entries are stored and retrievable in an Access™ file.

The second step of the literature review, called in-depth review, consisted of a thorough reading of selected key documents as identified in the quick review. The reviewers used a specific

reading-and-reporting format (see Annex 2) based on the basic conceptual framework. The objective of this in-depth review was to separate what was known from the remaining issues that needed still to be explored and to which the Tree Crop Studies should provide elements.

Remaining issues are an important input for the following steps since they indicated in which directions it was needed to focus the field research, avoiding thus to repeat existing studies and obtaining already known results. These remaining issues constituted one of the pillars upon which the field survey was designed. Results of the In-depth per commodity will be presented as part of the Commodity Reports (see reporting section below).

A report on the literature review presents the complete analysis of policy and sociology remaining issues. Below we highlight some of the key points. main remaining issues from the policy and poverty/sociology literature review points of view relate to the following points:

Policies related issues

Alternative modalities need to be defined for the operation of co-operatives, or farmers' associations or small business companies. Since up to now, co-operatives and farmers associations have been a mean used by the government to control and limit the power farmers could have gained through collective action, it has created a rebuff attitude or defiance towards any schemes involving authorities at any level in the constitution of farmers groups. This issue clearly deals now with a change of paradigm where instead of "organizing farmers" or "developing farmers" the orientation should be "helping farmers to make their needs for collective action become reality". This is a more general change in the current policy intervention paradigm from smallholders told what to do towards providing services needed by the smallholder in order to conduct properly their activities.

Along with this change of paradigm, the question of how to promote further development of smallholder share in the tree crop sector with a more cost effective intervention (less public money, more results) becomes a key-tissue too. Before stating that involvement of private companies is the only and desirable alternative, learning from areas of successful autonomous development of tree crop smallholder will be needed.

Several literature sources mention the development of private extension support services for smallholder farmers as a necessary step to be developed and should substitute for public extension services. However, how far this feasible, how much is this, what smallholder needs is not ascertain. The new trend towards more private companies involvement in the smallholder tree crop sector has equity implications that have been stressed in the preceding section.

b. Prospective analysis

Prior to the elaboration of a field survey protocol and questionnaire, and in addition to the results of the literature review a prospective work on the future of the tree crop sector was designed in order to identify key elements to be included in the field survey.

This prospective work was conducted with focus group workshops methods (stakeholder consultation). A first pilot workshop was conducted in Bogor with participants from government research and development institutions and from private sector and Universities. This workshop was a component of the training of Puslitbangbun staff in this specific methodology. Then, they

implemented two workshops at provincial levels (one workshop with participants from two neighbour provinces). Workshops organisation includes the following steps:

- *Identification and selection of participants* based on their knowledge of and commitment to the topic. The participants included local farmers, other operators from the plantation sector, and local government representatives.
- *Preparation of prospective materials and tools*. The use of visualisation techniques and software-supported calculation tools facilitate the prospective work.
- *Prospective approach* for the future of tree crops in Indonesia, focusing on main factors affecting the development of these crops.

The method is based on a participatory discussion process where the knowledge of each participant is integrated in order to build a common vision of the factors influencing the future of these crops in Indonesia.

The results of the three workshops were incorporated as inputs in the definition and design of survey questionnaire, and qualitative study. Workshop results are presented in a separate document. These results highlight some key factors, which are consistently mentioned as determining the current and future situation of the smallholder tree crop sector contribution to growth and equity. These factors are:

Infrastructure	Farm economics	Institutions	Policy
Technology	Culture	Marketing	

Each factor was discussed in order to establish which approach and data collection method would enable to document correctly the situation of the smallholder tree crop sector. In order to tackle them, it was agreed upon that a combination of quantitative and qualitative data was needed, as well as a combination of interviews of key informants and households survey and group/community discussion. These are further detailed in the sections below.

c. Quantitative data review and selection of commodities/provinces/subdistricts

In order to prepare the process of province and commodity final selection, it was needed to collect data from different sources about tree crop commodities and provinces.

Commodity selection was almost fully determined in the TOR. As indicated in the terms of reference at least five commodities (coconut, rubber, cocoa, coffee, cashew nut) were proposed for the analysis of smallholder tree crops, and at least three provinces should be included. Since the scale and the resources of this project did not allow for a wide-ranging collection of commodities and provinces, we used a criteria-based selection process combined with ranking methods to make the final selection of commodities and provinces. The team felt however necessary to discuss commodity selection through a clear approach and to explain the rationale of the province selection. For province and commodity selection, data for criteria values came from literature review, secondary statistic data and stakeholders direct inputs.

The table below displays the criteria, scores and ranking of the twenty-three most common tree crop in Indonesia. The ranking and criteria were selected in accordance with growth and equity taking into consideration the contribution to smallholder area (weight 0,6) and to foreign exchange (weight 0,4). It shows that in addition to the five pre-selected commodities, which are effectively are in the top six, it was necessary to add oil palm, ranked third in this table. The

robustness of this classification was tested with various relative weights ranging from (smallholder area 0,5 up to 0,7 and foreign exchange 0,5 to 0,3)

Table 5. Commodity priority list based on total smallholder area and foreign exchange

Crops	Smallholder Area (000 ha)	Rank Area	ForEx (Million US\$)	Rank ForEx	Score (0,6 area x 0,4 ForEx)	Priority
Coconut	3585,7	1	432	3	1,8	1
Rubber	3086,5	2	889	2	2,0	2
Oil palm	1038,3	4	1356	1	2,8	3
Coffee	1059,2	3	319	5	3,8	4
Cocoa	534,7	6	423	4	5,2	5
Cashewnut	547,7	5	42	11	7,4	6
Tobacco	163,3	10	71	8	9,2	7
Pepper	136,5	12	221	6	9,6	8
Sugar cane	176,7	9	6,6	15	11,4	9
Clove	407,1	7	1	20	12,2	10
Tea	65,3	16	112	7	12,4	11
Arecanut	71,4	15	53	9	12,6	12
Cassia vera	123,5	13	21,3	12	12,6	13
Capok	254,5	8	0,7	22	13,6	14
Nutmeg	43,5	17	49	10	14,2	15
Kemiri	142,1	11	0	23	15,8	16
Ginger	23,7	18	14	13	16,0	17
Cotton	17,5	19	11,4	14	17,0	18
Brown sugar	82	14	0	24	18,0	19
Vanilla	15,5	20	5,5	16	18,4	20
Cardamon	5,6	23	3,6	17	20,6	21
Tamarine	4,8	24	1,9	18	21,6	22
Patchouli	9,1	22	1	21	21,6	23
Castor	15,5	21	0	25	22,6	24
Citronella	2,2	26	1,9	19	23,2	25
Fibre	2,3	25	0	26	25,4	26

After establishing the final list of commodities, we proceeded with the province selection. Several criteria and their related indicators were selected. They all relate either to growth, equity or the presence of the selected crop. Indeed, for operational feasibility and relevance of the results the selected provinces had to show a good combination of the following characteristics: presence of the selected commodities and importance of these commodities, importance of the smallholder tree crop population both in production and in number, and a smallholder development dynamics at work. A weighted scoring method was used. The weight values resulted from a consensus within the group to focus our research in Provinces where the selected commodities were important, where smallholder tree crops were important, and where poverty was important. The relative weight of each criterion is also indicated below.

Based on team discussion we identified and defined fourteen criteria for province selection as follows:

1. Tree crop development potential: the potential of province mainly availability of suitable area to develop selected tree crops (rubber, coconut, cocoa, coffee, cashew nut, and palm oil).
2. Incidence of poverty: number or percentage of poor people in each province.

3. Social conflicts linked with tree crops: the level of social conflicts linked with selected tree crops in each province.
4. Relative importance of estate crop to province GDP: the contribution level (in percentage value) of GDP from estate crops to province GDP (included GDP from gas and oil)
5. Public intervention in the tree crop sector: the level of public intervention in term of tree crops project coverage as well as estate commodities policies focusing in selected commodities.
6. Cases of successful development: the level of cases of successful development in selected tree crops.
7. Coverage of selected commodities: number of selected commodities planted in each province.
8. Smallholder population: Number of household involve in selected commodities in each province.
9. Relative importance of smallholder in employment: percentage of smallholder employment in total province employment.
10. Relative importance of smallholder area in province area: percentage value of smallholder area (selected tree crops) in total estate area (selected tree crops) of province.
11. Evolution of smallholder share in province GDP: the growth rate of smallholder share (selected commodities) in province GDP in 1990 – 2000 period.
12. Relative importance of smallholder production in national production: percentage value of smallholder production (selected commodities) in national production (selected commodities).
13. Relative importance of smallholder tree crops in national GDP: percentage value of smallholder production (selected commodities) in national GDP.
14. Evolution of smallholder area: the growth rate of smallholder area (selected tree crops) in 1990 – 2000 period.

The table below displays the related indicators, source of data and relative weight given to each criterion.

Table 3. Indicators used for the selection of provinces.

Criteria	Indicator	How to get it	Sources	Weight
Development Potential	Team Rating	Data & analysis	In-depth review	0,5
Incidence of poverty	Percentage	Statistic data	CBS	0,7
Social conflicts	Experts Rating	Expert meeting	Workshop	0,5
Relative importance to PGDP	Percentage	Statistic data	DGE	0,3
Public intervention	Experts Rating	Expert meeting	Workshop	0,6
Successful development	Experts Rating	Expert meeting	Workshop	0,6
Coverage of commodities	Number	Data statistic	DGE	0,9
Smallholder population	Households Number	Statistic data	DGE	0,65
Smallholder in employment	Percentage	Statistic data	DGE & CBS	0,7
Smallholder area	Percentage	Statistic data	DGE	0,6
Share in province GDP	Growth rate	Statistic data	DGE & CBS	0,4
Smallholder production	Percentage	Statistic data	DGE	0,3
Relative importance to NGDP	Percentage	Statistic data	DGE & CBS	0,3
Evolution of smallholder area	Growth rate	Statistic data	DGE	0,7

Note : DGE : Directorate General for Estate Crops
CBS : Central Board of Statistics

For each province the corresponding values were computed. The provinces were ranked according to their results for each criteria and the total weighted value calculated. The final results give the following ranking:

Table 4. Ranking of provinces

Province	Values
Sulawesi Selatan	139,30
Sulawesi Tenggara	134,35
Riau	129,50
Sumatera Selatan	126,35
Lampung	115,95
Nusa Tenggara Timur	112,35
Jambi	105,90
Jawa Timur	104,15
Sulawesi Tengah	103,10
Kalimantan Barat	102,75
Maluku	82,35
Sumatera Utara	81,90
Jawa Tengah	80,40
D.I. Aceh	79,05
Nusa Tenggara Barat	74,75
Sumatera Barat	73,75
Bengkulu	67,90
Jawa Barat	64,60
Kalimantan Tengah	49,80
Irian Jaya	
Sulawesi Utara	
Kalimantan Timur	
Kalimantan Selatan	
Bali	
D.I. Yogyakarta	

This classification does not mean that provinces that are in the lower or little relevance group do not contribute to smallholder tree crop in Indonesia not that there are not interesting research sites. This classification is only valid for the project purpose given the conceptual framework, the criteria and indicators selected. As a result a final selection of four provinces was made. Three provinces were taken from the high relevance group and one from the second choice group: South Sulawesi, Southeast Sulawesi, Riau, and South Sumatera. Still it indicates also where the baseline survey should be extended to in order to gain broad coverage. Priority provinces would be Lampung, East Nusa Tenggara, Jambi, East Java, Central Sulawesi and West Kalimantan. In addition to the already selected provinces this set of ten provinces would cover all main tree crop islands or regions: Sumatra, Sulawesi, Java, Kalimantan, and Nusa Tenggara.

In each province we proceeded then to select the districts where fieldwork would focus. The procedure followed the steps as indicated below:

a. avoid districts where: $DSHTC < \frac{\sum PSHT}{N}$

with **DSHTC** = District smallholder tree crop population
PSHTC = Province smallholder tree crop population
N = number of districts in the province

b. rank remaining districts according to the percentage of poor households and the percentage of area planted by smallholder with the six selected commodities.

These two criteria were used to make sure that equity issue would be addressed as well as production issue. Two districts were selected in each province in order to ensure coverage of all commodities throughout the sample. The following step was to check the following conditions:

At least one of the 8 district chosen for 4 provinces has: cocoa
At least one of the 8 district chosen for 4 provinces has: rubber
At least one of the 8 district chosen for 4 provinces has: coconut
At least one of the 8 district chosen for 4 provinces has: cashew
At least one of the 8 district chosen for 4 provinces has: oil palm
At least one of the 8 district chosen for 4 provinces has: coffee

For this purpose, three types of statistical data were needed to sort out the most relevant districts: the total area under tree crop for the six selected commodities, total number of households involved in tree crops (from Direktorat Jenderal Bina Produksi Perkebunan), the total district area (from BPS), and the percentage of poor people from BKKBN.

Below is the resulting list of the districts with their main commodities.

Table 5. Provinces, districts and related commodities distribution

PROVINCE	DISTRICT	COMMODITY
Southeast Sulawesi	Buton	Cashew nut
	Kendari	Cocoa, Cashew nut
South Sulawesi	Bulukumba	Coconut, Coffee
	Pinrang	Cocoa
South Sumatera	Musi Banyuasin	Rubber, Oil Palm
	Ogan Komering Ulu	Coffee, Rubber
Riau	Indragiri Hilir	Coconut
	Kampar	Oil Palm

This distribution does not mean that the commodity-based analysis of the sample has to be limited to the households in the corresponding districts. For example, the sample used to analyse the situation of coffee smallholders includes all households in the data base that are registered with a coffee plantation, whether or not they are located in Ogan Komering Ulu and Bulukumba or not. It is however expected most of these households will be located in those two districts.

For the selection of sub-districts and villages, the same procedure applied with the following pattern:

1. Compile data about the number of households linked with the selected commodities in all sub-districts/villages and compute the average
2. Eliminate sub-districts/villages below the average
3. Calculate the total area for the selected commodities.

4. Rank the sub-districts/villages according to the share of this area in the total area
5. Calculate the percentage of poor household to the total number of households
6. Rank the sub-districts/villages according to the share of poor households
7. Affect a 0,4 and 0,6 coefficient respectively to both indicators
8. Sum the results and rank the subdistricts/villages accordingly
9. Select the top 2 subdistricts/villages
10. In case of missing data for this exercise, use expert judgement from three different persons
11. If no data is available for point 1, start directly with point 3.

The selected sub districts and villages are indicated in table below.

Table 6. Subdistricts and villages selected for the sample

Province	District	Subdistrict	Village
Riau	Indragiri Hilir	Mandah	I gal*
			Belaras
		Tempuling	Tempuling
			Sungai Ara
	Kampar	Tapung Hilir	Tapung Makmur*
			Kota Garo
		Kampar Kiri	Lubuk Sakai
			Karya Bhakti
South Sumatera	Musi Banyuasin	Sungai Lilin	Sumber Rezeki
			Nusa Serasan
		Betung	Pulau Rajak
			Tanjung Laut*
	Ogan Komiring Ulu	Peninjauan	Karya Jaya
			Belimbing
		Muara Dua Kisam	Muara Dua Kisam*
			Penyandingan
South Sulawesi	Bulukumba	Kindang	Borong Rappao
			Kindang
		Kajang	Lolisang*
			Pantama
	Pinrang	Patampanua	Sipatuo*
			Tonyamang
		Mattiro Bulu	Padakkalawa
			Padaelo
SouthEast Sulawesi	Buton	Batauga	Lawela
			Busoa
		Gu	Lakapera
			Bombanawulu*
	Kendari	Lainea	Pangan Jaya
			Watumeeto*
		Unaaha	Lawulo
			Andabia

* Also location for sociology study

Procedure for selection of household respondents at village level.

1. Calculate the number of households involved in agriculture production in each selected village (including landless agricultural worker, agriculture includes plantation and livestock)
2. Sum up the total amount of households for the four selected villages
3. Calculate the number of respondents to be interviewed in each village as the proportional share of the total number of respondents to interview in the district.
4. Random select the desired number of respondents from the respondent list in each village, using random number generating tables or random selection ad hoc methods.
5. I nclude a list of replacement respondents on a one-to-one basis..

The Team discussed the issue of selecting specifically smallholder tree crop households from village lists established purposively for this survey versus including all agricultural households in the village before random drawing. Finally the second solution was preferred for several reasons.

First, it was felt that a survey of exclusively tree crop smallholder would not allow for a comparison, would make losing a valuable source of comparison with non-tree crop smallholders in the same area.

Second, although some team members feared that this choice could lead to incorporate too many respondents not involved in tree crop and therefore make our sample less valuable for analysis, it was felt that in case of such a situation to occur, this would be of the greatest importance, since all criteria used for province, districts, sub districts and village selection pointed to area with the highest concentration smallholder tree crops.

Third, drawing agricultural households and not only tree crop households makes the use of the poverty proxy based on rural population data more relevant since the share of agricultural households to total rural population is higher than the share of tree crop smallholder population.

Fourth, the inclusion of non-tree crop smallholder household would allow to collect more relevant information, in particular to understand the reasons why these households are not involved in tree crop plantation. For this purpose a special data sheet was added to the questionnaire.

Fifth, it will complete the analysis of tree crop smallholder population dynamics. By including all agriculture households, we will be able to trace not only the fate of tree crop smallholders (whether they still are involved or not in tree crops after some years) but also to see whether other agricultural households have joined or not the tree crop smallholder population.

Finally, this approach was also a different way to look at the smallholder tree crop population and therefore consistent with the call made during the methodology workshop held in Bogor for more innovative research.

The village lists for random drawing of respondents include thus all households linked with agricultural activities, without excluding landless farmers or absentee owners. Only households without any links with agriculture were excluded (for instance pure traders, or pure government employees, etc.). It was expected that these exclusions would represent a small number of village households.

d. Baseline sample of tree crop smallholders for the socio economic survey

The sampling procedure aimed at identifying an accurate size of sample in order to represent the smallholder tree crop population for a specific variable. According to our framework, in relation with equity we considered that a variable close to the welfare level of the individual household was to be represented. Since such variable does not exist but is a construct, we took as a proxy the distribution of poor rural households in the different provinces based on BKKBN data for 1999. The BKKBN method is a qualitative scoring of households with a four-level scale ranging from the poorest to wealthiest household. It is a census survey. We take as "poor" households the first two categories in the KKBN scale ("Pra-sejahtera" or Pre-prosperous and "Sejahtera I" or Prosperous I). The rationale for this choice was that a) data was available for all selected provinces, b) rural areas in the selected provinces are mainly agricultural areas where smallholder plantation is dominant.

The formula below was used to calculate the sample size. It corresponds to a 95% confidence level with a 7% error. It is applied to the total smallholder household population in each province.

$$N_s = \frac{N_{tc} * \%poor * \%non-poor}{(N_{tc} - 1) * E^2/4 + \%poor * \%non-poor}$$

Where N_s is the sample size to be calculated

N_{tc} is the household population size in each province

% poor is the distribution of poor rural household in each province

% non-poor is the distribution of non poor household = (1-% poor)

E is the sampling error level, set at 7%.

This formula gives a total sample of 1163 respondents distributed as indicated in the table below. However, the final count of entries in the database amount to 1210 households as indicated below.

Table 7. Sampling size per district

	Riau		South Sumatra		Southeast Sulawesi		South Sulawesi		Total
	Inhil	Kampar	MUBA	OKU	Buton	Kendari	Bulukumba	Pinrang	
Total HH	124205	159598.1	110177	100169.7	41080.69	55180.64	21765	28716	
Poor HH	16.25%	15.68%	39.31%	30.70%	33.24%	35.86%	15.14%	15.46%	
Non poor HH	83.75%	84.32%	60.69%	69.30%	66.76%	64.14%	84.86%	84.54%	
Sample (HH)	111	108	194	173	180	187	104	106	1163
Realised (HH)	131	102	209	173	180	195	110	110	1210

This sample size is consistent with the Terms of reference, which set up a sample of maximum 1400 households.

e. Design of socio-economic survey questionnaire

The questionnaire was designed to collect data still needed in order to provide sufficient information to discuss the indicators related to the conceptual framework, to address the remaining issues as identified in the literature review, and items identified in the prospective workshops.

The questionnaire entails several modules that can be used separately according to the characteristics of the household (see questionnaire full content in Annex ...). It is applied to the household level as one unit, and for the last twelve month from the interview date. Interviews are conducted on a family-to-face approach between the household's members (usually head and spouse plus big children) and the enumerator. Village and government officials or extension workers and neighbours are requested not to be present. The questionnaire structure is the following:

General Information module

1. Household Head
2. Household Members

Includes various social data and the identification of the household to enable further survey.

Household's Assets module

3. Land and tree
4. Other assets

Estimates the level of welfare of the household based on the existing assets and their state. A total value of these assets is calculated for each household. Indicates also the types of activities to investigate, according to the existing land assets, and physical assets. Includes data on the evolution of land use and land status.

Income from agricultural production module

- A. Production costs and other costs
 5. Plantations
 6. Annual crops
 7. Animal production/Fishing/Aquaculture

Production and other costs data help not only to calculate the net income from agricultural activities, but also to characterise the technology level and the farming system. This module is used only for owners-tenants, sharecroppers and renters. It excludes absentee owners who are not involved in the production decision process and landless workers.

- B. Income
 8. Plantations
 9. Annual crops
 10. Animal production/Fishing/Aquaculture

Gross income and net income are calculated so that it is possible to estimate the intensity of technology use through the share of input costs in total production costs as well as the contribution of agricultural production income to total household income.

Income from non agricultural production module

- A. From the agricultural sector
- B. Off-farm income
- C. Borrowing, de-capitalisation

Income from the agricultural sector, but non-agricultural production includes the renting out of household's agricultural production factors including household's labour force, and post-harvest/transformation of agricultural products.

Off-farm income relates to all other sources of income. Borrowing and de-capitalisation are analysed in order to balance a monetary flow on a yearly basis.

Households expenses module

- A. Basic food and needs
- B. Other expenses
- C. Saving and investment

Basic food and needs assess the household consumption of food, health, education, energy, and households goods calculated on a yearly basis. Other expenses include recreation, social activities. Data on saving and investment (capitalisation of assets) are needed to balance the monetary flow analysis. This information is used to identify the consumption pattern of households and crosscheck the relevance of economic data.

Access to resources for agricultural activities module

- A. Access to inputs
- B. Access to equipment
- C. Access to credit
- D. Access to information and extension
- E. Access to markets

This is a more qualitative set of data that will be treated statistically in order to describe the current situation, concerns and needs of the smallholder tree crops population regarding the issues analysed which all derive from the literature review and the discussion in the stakeholders workshops.

Household's knowledge level module

- A. Technical knowledge
- B. Agricultural extension
- C. Participation to organisation
- D. Participation to development
- E. The future

This module focuses on the understanding and involvement of the respondent household level with its environment. It includes an assessment of the current knowledge.

Non-smallholder tree crop household module

This module investigates the reason why the respondent household has no tree crop production.

Furthermore, this questionnaire is designed to help check the consistency of economic data through a yearly-basis monetary flow analysis. It is based on the following equations:

MIF=MOF

is the balance of the yearly household's cash flow where the total amount of monetary inflow MIF is equal to the total amount of monetary outflow MOF;

TotNI = AgNI + NAgNI

where TotNI is the household's net income, AgNI its agricultural net income and NAgNI the non agricultural net income;

MIF= TotNI + ExS + Cr

where ExS represent exceptional sales (de-capitalisation), and Cr financial inflow such as credit and borrowings;

MOF= HC + ExP + LR + NS

where HC is the households yearly consumption, ExP are exceptional expenses, LR is loan reimbursement and NS are net savings.

All the components of these equations can be calculated with the data obtained from the survey modules. By comparing MIF and MOF values for the same household, we can check the relevance of the data collected. A margin of errors of $\pm 10\%$ was accepted. Surveys reporting errors beyond this had to be reviewed. This crosschecking process is conducted in the different places of data collection in order to facilitate the cleaning of data. Immediately after collection by the enumerators, a coordinator from Puslitbangun, one per province and crop, controls data quality, so that they can proceed immediately to the necessary adjustment at field level. A second data checking is conducted after centralising the survey results at Puslitbangun. The survey is officially accepted after successfully going through these two control steps.

f. Design of qualitative and sociology survey questionnaire

Objectives

The more specific objectives of the qualitative and sociological survey was to delve into the following issues:

- What are the technologies, methods and production inputs used by farmers in different areas and which methods and technologies could support a competitive and sustainable production system?
- What are the dynamics and the limiting factors of smallholders' economy and welfare?
- What are the most suitable organisational and institutional approaches or forms (e.g. cooperatives, Nucleus estates, Project management unit) to meet the needs of farmers in terms of market access both for input and output?
- How do farmers access land for investment and management of tree crops? What land property institutional forms are the more likely to support investment and good management in tree crops?
- What services do farmers consider as a priority, and what is farmers' perception towards various existing or alternative delivery models, and delivery approaches for various services such as extension (e.g. individual delivery or in group).

Analytical Framework and Indicators

The basic analytical framework used to develop the indicators for the sociological study of smallholder tree crops can be found in appendix 3. This framework stresses the following factors:

- human resources including knowledge, skills and capacities
- work culture including : attitudes, habits and motivations
- social network, including the relations of farmers with other stakeholders
- capacity to access various services, such as education, health, extension, capital, technical assistance
- policy and interventions
- infrastructures
- global economic influences

Methods and tools

The sociology survey is based on a qualitative approach and used the following methods :

- smallholder study and interviews to observe the existing production systems (including institutions and working relations) and the dynamics of the smallholders' economic situation and welfare
- study of the local history to analyse the origin of smallholders plantation and the institutional changes, especially in terms of land tenure and working status

- case studies to look at issues of land access, stability of employment access, smallholders' welfare and farmers' organisations or group dynamics
- analysis of documentation and participatory studies to examine the extension programs as well as the programs for poverty alleviation (from government, private sector, and community's own organisations).
- qualitative analysis of various community studies, local history or social changes studies, and case studies.

Various tools were used to gather the information, combining :

- group discussions, especially with farmers members of groups and organisations;
- key informants' interviews, especially with leaders of farmers' groups and organizations, traders, entrepreneurs, extension officers, as well as formal and informal village leaders.
- in-depth interviews of households, with a focus on farmers considered as wealthy or economically "successful" on one hand, and farmers considered as "poor" or economically "unsuccessful" on the other hand - based on the criteria of the local society and as indicated by local informants
- direct field observation.

Data were systematically crosschecked between various topics and informants to ensure maximal validity.

Choice of Locations

The locations for the Qualitative analysis were chosen in accordance with the selection of the villages in the quantitative sample for economic analysis, in order to maximize the synergy between the two approaches. In each district, one village was chosen as the centre for the qualitative study, based on consideration of the dominant ethnic groups amongst smallholders' communities in the area. This basic information on ethnic composition was obtained through discussion with local key informants. The presence of development projects (government, private or NGO-based) was also taken into account in the selection, so as to represent the largest possible diversity of existing ethnic groups in each Province, based on the ethnic composition as indicated in Table 8.

Table 8. Main Ethnic Groups in each Survey District

Province	District	Commodities	Ethnic groups
Riau	Indragiri Hilir (tidal area)	Local coconut varieties	Malay (indigenous), Javanese (migrants)
	Kampar	Oil palm	Mixed
South Sumatra	Musi Banyuasin	Rubber	Malay (indigenous), Javanese (migrants)
	OKU	Coffee	Malay
Southeast Sulawesi	Buton	Cashewnut	Buton
	Kendari	Cocoa	Tolaki (indigeneous), Javanese, Bugis
South Sulawesi	Bulukumba	Coconut	Bugis
	Pinrang	Cocoa	Makassar

Design of interview guidelines

An interview guideline was designed to ensure consistency of the data collected amongst interviewers and locations.

The structure of the guideline was organized into five Forms based on the following topics:

1. Farmers and the Management of Tree Crops (Form A)

This topic was meant to obtain information on the behaviour of farmers in the field of tree crops management, covering:

- Labour use patterns
- Access to capital, input and equipment, as well as technology and information
- marketing systems
- economic development patterns (based on land and capital).
-

2. Sustainability of Smallholder Tree Crops (Form A)

This was meant to obtain information about how far the behaviour of farmers in tree crops management is supporting sustainability and farmers welfare, covering the following aspects:

- Creation of employment and economic activity's opportunities
- capacity building of farmers human resources
- control of risks, development of work and business stability
- farmers' empowerment

3. Tree Crops Smallholders' institutions (Form B)

This topic was meant to get information about the institutional patterns for production relationships within the smallholder tree crop sector and their roles in the economic development and welfare of the farmers. The aspects covered included:

- identification of existing types institutions
- institutional development
- institutions' reach and participation of farmers

4. Local history of tree crops development and work culture (Form C)

This topic was meant to get information about the development of the tree crops farmers' communities, especially from the point of view of production relationships and subjective cultural perceptions about natural resources management. Topics covered included:

- origin of tree crops development and subsequent changes
- development of the communities and related work culture

5. Group development dynamics, organisation and extension (form D)

This was meant to gather information about collective actions at the level of farmers groups and organizations, in relation to economic development and farmers' welfare enhancement, The role of extension in the development of the tree crops sector was also covered under this topic. Specific aspects included:

- successful farmer groups
- successful organizations
- role of extension (covered in form E-B)

6. Poverty Alleviation in Smallholder Tree Crops Sector

This topic was meant to study the beliefs, perceptions and attitudes of tree crops smallholders towards programs aimed at poverty alleviation, more specifically:

- perception of poverty amongst tree crops smallholders
- causes of poverty
- strategies for poverty alleviation

7. Income strategy of tree crops smallholders households

This topic was meant to study the patterns of economic development and welfare enhancement at the level of the households, based on:

- study of wealthy farmers
- study of poor farmers

g. Data analysis and reporting

The analysis is based on statistical methods applied to a representative sample (static description, correlation analysis, parametric and non parametric tests, etc). Since the time allocation does not allow for the construction of farm household models of tree crop smallholder and given the inherent limitation of these representations anyway, the analysis process will be conducted using the set of selected indicators already mentioned, which are discussed in the light of policy options.

In particular the analysis focuses on establishing a classifications of households based on their welfare level as measured with assets, consumption pattern and income level. The characteristics of each group are analysed in order to determine the variables that are strongly correlated with each welfare level. The same exercise is developed for the analysis of production and productivity among households. Then, a cross-classification analysis is used to relate growth indicator and equity indicators.

Equity is measured through indicators of distribution and dispersion applied to portions and to the whole sample. Comparison with existing measure of equity for other population samples are used when available to further discuss this issue.

Similarly, more qualitative data are computerised and treated to determine the significance of key factors using frequency analysis. This type of data treatment and analysis is particularly used fore the modules related to knowledge and access to resources.

All relevant findings from the quantitative survey will be checked with the results of the qualitative survey and reciprocally in order to enrich the analysis and provide a complete picture of the identified issues.

The reporting structure used reflects the conceptual framework as indicated bellows. Reports will include:

Basic reports:

- ✓ *Eight district reports* of the socio economic survey results where the characteristics and contribution of the smallholder population to growth and equity will be discussed.
- ✓ *Four province reports* about the sociological and qualitative aspects of smallholder development.
- ✓ *Six commodity reports* where data is reorganised per commodity to draw a picture of the specific characteristics of these commodities across our sample. of survey results.

Issues reports:

- ✓ *One economic report* aggregating and further refining the results of the district reports.
- ✓ *One sociology/qualitative report* aggregating and further refining the results of the province reports.

- ✓ *One tree crops report* aggregating and further refining the results of the commodity reports.

Synthetic reports:

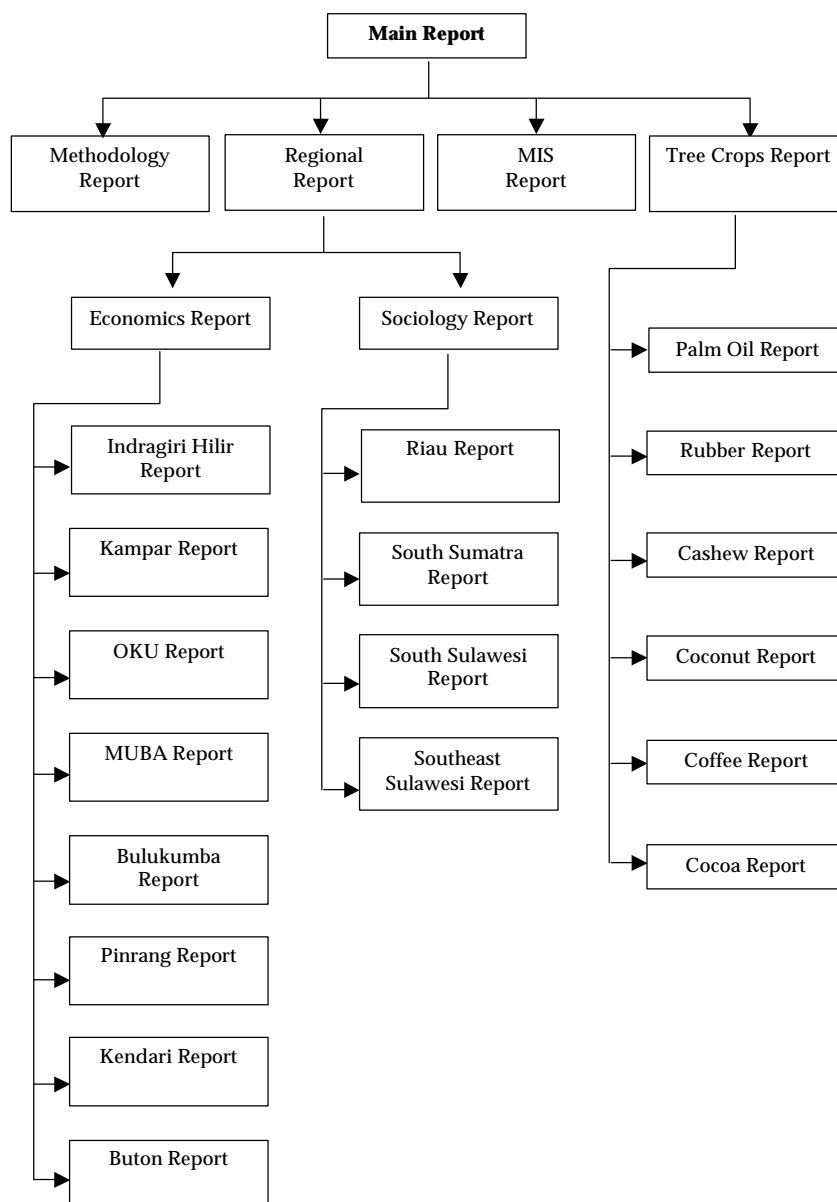
- ✓ *One regional report* combining the results of the economic and sociology reports.
- ✓ *One methodology report* (this document).
- ✓ *One Management Information System report*.

Final report:

- ✓ *One final report* addressing the issue of smallholder tree crop development and contribution to growth and equity in Indonesia, synthesizing the findings and developing possible options and strategies for discussion by stakeholders.

The structure of reporting is displayed below and an outline of the regional and commodity reports is available in Annex...

Fig 3. Reporting system used in the project



➤ **LSM :**

- | | | |
|---|---|--|
| <input type="checkbox"/> Asosiasi pedagang | <input type="checkbox"/> Asosiasi tani per komoditi | <input type="checkbox"/> Kelompok tani |
| <input type="checkbox"/> LSM lingkungan | <input type="checkbox"/> Asosiasi Proesor | <input type="checkbox"/> LSM lain |
| <input type="checkbox"/> Large estate company | <input type="checkbox"/> Private | <input type="checkbox"/> Public |

➤ **Petani :**

- | | | |
|-------------------------------------|------------------------------------|-------------------------------------|
| 1. <input type="checkbox"/> Pemilik | <input type="checkbox"/> Penggarap | <input type="checkbox"/> Buruh Tani |
| 2. <input type="checkbox"/> PIR | <input type="checkbox"/> UPP | <input type="checkbox"/> non proyek |
| 3. <input type="checkbox"/> Poor | | |

➤ **Lembaga Keuangan:**

- | | | |
|-------------------------------|--|-----------------------------------|
| <input type="checkbox"/> Bank | <input type="checkbox"/> Money lenders | <input type="checkbox"/> Koperasi |
|-------------------------------|--|-----------------------------------|

➤ **Other Services:**

- | | | | |
|--|-----------------------------------|-------------------------------|--------------------------------|
| <input type="checkbox"/> Penyuluh | <input type="checkbox"/> Peneliti | <input type="checkbox"/> APPI | <input type="checkbox"/> Media |
| <input type="checkbox"/> Penangkar bibit | | | |

D. Type of Data :

- | | | |
|--|---|--|
| 1. <input type="checkbox"/> No number | <input type="checkbox"/> Basic Field data | <input type="checkbox"/> Processed/analysed data |
| 2. <input type="checkbox"/> Description of situation | <input type="checkbox"/> Description of evolution | <input type="checkbox"/> Outlook |
| <input type="checkbox"/> Konseptual / teoritis | | |

E. Content (tick \surd if those components are found in the reviewed document)

	Information at Household/ Local level	Information at Regional/ National Level
Growth	Household characteristics	Productive land availability
	Farm size	Cultivated land
	Assets	Number of farmers
	Input use	Total production
	Yield	Regional and International prices
	Price	Regional income from SHTC.
	Income and Expenditure	Infrastructures
	Land Tenure System	Processing facilities
	Social Relations	Characteristics of credit
	Access to services and information	Projects/growth
	Methodology	Average education level
	Technology	Regional and National policies
		Regional and international trade (volume)
	Methodology	
	Research and extension	
Equity	Typologies	% of poor in the region
	Distribution of :	Income of TCSH/ average income
	◆ Household characteristics	Purchasing power
	◆ Farm size	Regional and National policies for equity
	◆ Assets	Projects/Equity
	◆ Input use	Aid programs
	◆ Yield	Market structure (bargaining power)
	◆ Price	Social relations
	◆ Income and expenditure	Methodology
	◆ Land tenure system	
	Methodology	

APPENDIX 3

Basic framework for reading-and-reporting in-depth literature review

Document : Author : Year : Title:		
	What we know	Remaining issues
Competitiveness of Smallholder Tree Crop (SH TC) Systems		
Sustainability/Resilience of SH TC		
Smallholder welfare / poverty alleviation / equity		
Institutional and Organizational models		
Land access		
Services to SH : - land registration - research - extension - training - credit - aid/grants/subsidies - planting material		
Marketing of SH TC products - local/domestic - international		

	Study	Strategy	Analysis		
labour use, resources use marketing system use and adoption of technologies	Village	Community study	key informants interviews participatory observation group discussion	Local economy leaders, farmers in different categories, traders, entrepreneurs, extension officers, village official leaders	Investigate t different pai of tree crops production
d Types of new work and economic opportunities human resource quality (health, education...) services and mechanisms to limit economic and employment risk					

Use of Productive assets (capital, labour force, land) social mechanisms for poverty alleviation	Farmers and households	Case studies	Individual trajectories / history	wealthy and poor farmers farmers with increasing or decreasing land assets different categories of farmers	Study the dy of welfare ar economy of t crop smallhol farmers
relations between plantation owner and employees relations between farmers, relations between farmers and traders	village	community studies local history	key informants interviews participatory observation	Local economy leaders, farmers in different categories, traders, entrepreneurs, extension officers, village official leaders	Investigate t different pai of tree crops production
relations between owners					

	development) level and benefits of organizations			organization members	organizations	
1	program's models and approaches empowerment of poor farmers	village group	documents analyses participatory studies	key informants interviews group discussion	programs' officers members / beneficiaries of projects or programs	Study the implementati extension and poverty allev programs

APPENDIX 3

Analytical Framework and Indicators for the Qualitative and Sociological Study

	Indicators	Scope of Study	Study Strategy	Method for Data Analysis	Focus of study	Objectives
Growth						
Economic management pattern	labour use, resources use marketing system use and adoption of technologies	Village	Community study	key informants interviews participatory observation group discussion	Local economy leaders, farmers in different categories, traders, entrepreneurs, extension officers, village official leaders	Investigate the different patterns of tree crops production
Employment and economic opportunities creation	Types of new work and economic opportunities human resource quality (health, education...) services and mechanisms to limit economic and employment risk					

Equity						
Income patterns	Use of Productive assets (capital, labour force, land) social mechanisms for poverty alleviation	Farmers and households	Case studies	Individual trajectories / history	wealthy and poor farmers farmers with increasing or decreasing land assets different categories of farmers	Study the dynamics of welfare and economy of tree crop smallholders
Institutional aspects of production and work relationships	relations between plantation owner and employees relations between farmers, relations between farmers and traders	village	community studies local history study	key informants interviews participatory observation group discussion	Local economy leaders, farmers in different categories, traders, entrepreneurs, extension officers, village official leaders	Investigate the different patterns of tree crops production
Land tenure institutions	relations between owners and cultivators				Local economy leaders, farmers in different categories, extension officers, village official leaders	Study changes in land tenure institutions
Farmers' groups and organizations dynamics	psychological factors in organizations' development social factors (farmers participation) economic factors (economic development) level and benefits of organizations	Farmers Groups and organizations	Case studies	key informants interviews -group discussion	leaders of farmers' groups and organizations (successful and not successful) farmers' group and organization members	Investigate the dynamics of the development of economic farmers' groups and organizations
Patterns of implementation of extension and poverty alleviation programs	program's models and approaches empowerment of poor farmers	village group	documents analyses participatory studies	key informants interviews group discussion	programs' officers members / beneficiaries of projects or programs	Study the implementation of extension and poverty alleviation programs