

The background of the entire page is a close-up photograph of cocoa beans, showing their characteristic reddish-brown color and textured surface. The beans are piled together, creating a sense of depth and abundance.

**Research Report**

**Needs Assessment of Cocoa  
Business Development Using  
The Value Chain Approach  
&  
National Movement of Cocoa  
Production and Quality  
Improvement  
(GERNAS KAKAO)**

**Case study on Majene Regency,  
West Sulawesi**



**FORDFOUNDATION**



## RESEARCH REPORT

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# Needs Assessment of Cocoa Business Development Using The Value Chain Approach

IN COOPERATION:

FORD FOUNDATION

and

Regional Autonomy Watch

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## **I. INTRODUCTION**

### **1.1. BACKGROUND**

Plantation is a strategic agricultural subsector and has become one of the exceptional commodities in Indonesian economy. Amongst many other agricultural subsectors, this subsector has been growing significantly, i.e. 17.5% per year (Statistical Central Agency, 2012). Actually, the role of the plantation subsector is higher since it is related closely with industrial sectors which are middle- and downstream subsystems, therefore it has the potential to increase added value. Having such interrelatedness and increased added value potential, the plantation subsector can become a subsector to overcome problems of unemployment, food security, and local economy. Another important role is it's being a base to develop people's economy throughout Indonesia so it can reduce the imbalance of interregional development.

One of the exceptional commodities in plantation sector is cocoa. Indonesia is the second larger producer in the world with total production of 809,583 tonnes, after Ivory Coast with total production of 1,223,150 tonnes (FAO). Such production has contributed foreign earnings amounting to US\$ 1,4 billion in 2009 which was the third largest foreign earnings in plantation sector after palm oil and rubber. During 1998 until 2011, land used for cocoa plantation was noted down to have been increased by 9% per year. From 1,746 million hectares of cocoa plantation, 94% was grown by community, 3.1% by government, and 2.9% by large scale private plantation corporation (Directorate General of Plantation, 2012).

One of the cocoa product center areas in Indonesia is West Sulawesi. In the province, which is a newborn province resulted from expansion of South Sulawesi Province, cocoa has been an exceptional commodity since it does not just give significant contribution to the Gross Regional Domestic Product (GRDP), but also provides work opportunities for most local people. Total area of cocoa plantation in West Sulawesi is 194,281 hectares with a total production of 122,256 tonnes in 2011 (Statistical Data of Plantation, 2012). One of cocoa cultivation centers in West Sulawesi Province is Majene Regency. This Regency in the west coast of Sulawesi has a total area of 947,84 km sq and total population of 153,743 (2009) which are spread over 8 sub regencys. Based on the statistical data of Plantation (2010), total area of cocoa plantation owned by the people in Majene is 11,251 hectares which involve 7,771 farmer families

Cocoa contribution to GRDP in Majene Regency is the highest contribution of subsectors, amounting to

20% of GRDP formation in Majene. Currently, cocoa cultivation and plantation are entirely managed and handled by local farmers with majority of the land are of their own. This is because cocoa cultivation is a hereditary business of their big families of cocoa farmers. Medium and big scales business corporations have not yet involved in this sector.

In the cocoa trading in Majene, the biggest role is held by traders, i.e. little traders until big ones at the Regency level. There are not many farmers who also have the role as trader in cocoa trading chain in Majene. The price level used in cocoa trading refers to that determined by two big markets of the cocoa commodity, in New York and London. From the side of market demand, traders tend to take cocoa seed being in condition of unfinished process from the farmers, which are then reprocessed again in the form of fermentation or be dried up in the sun to get a better degree of water content. For the processor, desired quality obtained from fermentation.

Farmer's position in cocoa trading chain in Majene is not strong. As the party doing the cultivation, farmers tend to accept a low price. It is because farmer's characteristic as a price taker in cocoa trading chain. The reasons for this condition are farmers' lack of ability, low motivation in maintaining their plants, low productivity, and so on.

Such condition is even worse due to the weaknesses of the farmer's institution. There are many farmer institutions such as farmer groups in Majene, however only 10% of them are really function as farmer group. Most of the farmer groups do not function well due to their certain motive in establishment of the groups, that is, seeking for some opportunities coming from the government project. Existing farmer groups are also new groups, therefore they have not been able to optimize their role in strengthening farmer capacity.

Having considered the above condition, the Regional Autonomy Watch (KPPOD) sees that it is important to make a study on cocoa business in Majene Regency. The study is carried out to observe all the problems occur in cocoa business value chain in Majene Regency. The purpose of the study is to find a baseline to overcome all the problems related to cocoa as the main strategic commodity in Majene.

### **1.2. PROBLEM FORMULATION**

Based on the abovementioned background, problem formulation of the studi is as follows:

- 1) How is the general situation regarding cocoa business in Majene?

- 2) How is the problem in relation with cocoa business value chain in Majene?
- 3) What is the root cause of the cocoa business in Majene?
- 4) What is the follow up action plan for developing business climate to improve cocoa business value chain in Majene?

### 1.3. PURPOSE OF THE STUDY

Purpose of the study are as follows:

- 1) Describe the general situation of cocoa business in Majene Regency;
- 2) Analyze problems occurred in cocoa business value chain at Majene Regency;
- 3) Be a baseline or a base for follow up action plan to solve the problems of cocoa business value chain in Majene in the future and to develop cocoa business climate.

### 1.4. BENEFIT OF THE STUDY

It is expected that the result of the study can provide information regarding problems as well as stakeholder analysis at each cocoa value chain in Majene. The hope is, the study result will be one of the important inputs for making a good policy to solve cocoa problems in order to increase cocoa productivity in Majene. In addition, it is expected that the study can help identifying important points to strengthen implementation capacity in the field at the framework of business climate development for increasing business value chain operationally.

## II. FRAMEWORK OF THE STUDY APPROACH

As livelihood of majority of the people in Majene Regency, cocoa planting should be the main source to support the community economic life in the region. Nonetheless, in fact such cocoa business has not yet given optimal benefit for the farmers. Some of the causes are: productivity is not optimum, farmer's bargaining position in business value chain is still weak, plus some other causes. It is because farmers do not have strong bargaining position in cocoa business chain in Majene. This low bargaining position is due to many reasons, such as most collective trader being direct buyer of cocoa from the farmer, low farmer productivity, and cocoa trading chain being inefficient.

To optimize the role, and to improve bargaining position of the cocoa farmers, an analysis of cocoa business value chain in Majene is needed. Value chain is an activity which is started from raw material until after sales treatment. A value chain includes activities occurred resulting from supplier linkages and consumer linkages. Such value chain analysis should

be carried out in order to improve and to make each cocoa business value chain in the area efficient, so that at the end it can increase the economic condition in Majene.

To support the value chain analysis, a stakeholder analysis describing role of each stakeholder in each value chain is needed. By making such stakeholder analysis, each stakeholder's role that needs to be improved in each cocoa value chain can be observed. From the analysis, it is expected to get a recommendation to improve performance of the stakeholders at each cocoa business value chain in Majene. Result of the value chain analysis will emphasize more on mapping of the problem, and will not cover technical matters of each cocoa business value chain in Majene.

## III. METHODOLOGY OF THE STUDY

### 3.1. STUDY APPROACH

The approach used in the study is a qualitative approach. The approach is considered appropriate to explore indepth information regarding cocoa business value chain in Majene, starting from input value chain until market value chain. Having this approach, it is expected that interpretation and understanding of the essence of cocoa value chain, business climate development, and interaction between involved stakeholders can be formed inductively. For the same purpose, this research is typically descriptive: describing and explaining analytically, why and how problem patterns occur.

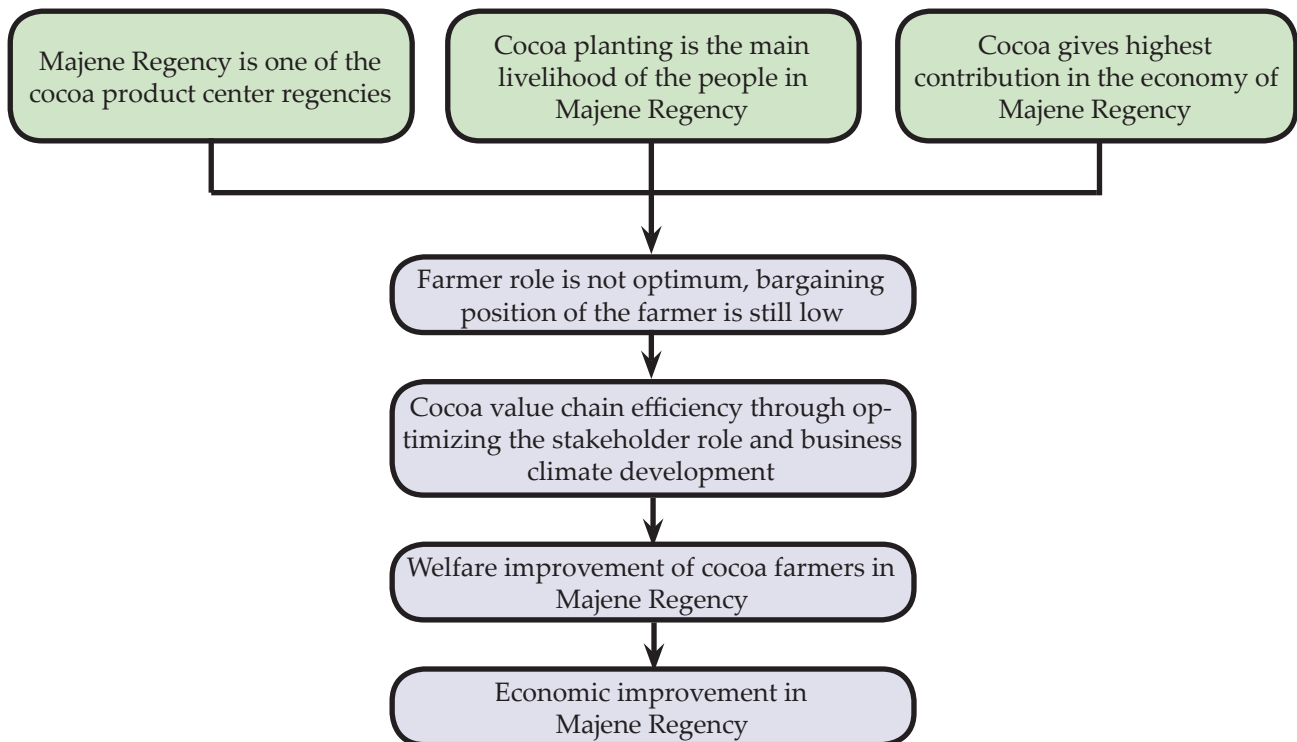
### 3.2. STUDY LOCATION

The study is conducted in Majene Regency, in particular in three sub regencys which are cocoa centers. Those regencys are: Tubo Subregency, Ulumanda Subregency, and Malunda Subregency. Although the focus of the study is in Majene Regency, but location of the study is expanded until Polewali Mandar to observe cocoa marketing chain in Majene, and to Jakarta which involves cocoa stakeholders at national level.

### 3.3. KINDS AND SOURCE OF DATA

Kinds of data used in the study are primary data and secondary data. Primary data is obtained from survey/interview result and focus group discussion (FGD) involving cocoa stakeholders in Majene Regency. Besides collecting in the region, primary data collection is also conducted through interviews and FGD involving cocoa stakeholders at national level. To support primary data, secondary data regarding cocoa plantation as well as GERNAS implementation which are obtained from Local Government Office of Forestry and Estate of Majene Regency, Statistical

**Figure 1. Framework of the Study**



Agency of Majene, Ministry of Agriculture, and other institution/agencies, are also collected.

### 3.4. METHODS OF DATA COLLECTION AND SELECTION OF RESPONDENTS

Primary data collection in this study is conducted using two methods, i.e.:

- 1) Observation, is a data collection technique through direct observation on the research's background and object
- 2) In-depth interview, is made by deeply interviewing selected resource persons or cocoa business stakeholders in Majene and at national level
- 3) Focus Group Discussion (FGD) with cocoa stakeholders in Majene Regency, as well as FGD involving cocoa stakeholders at national level.

Selection of resource person in this study is made based on purposive sampling, where resource person is selected based on kinds of information or certain consideration that has been available or determined and identification made upon groups/persons of certain qualification (related to position, expertise/expert sampling, and experiences in cocoa business). However, during implementation in the field, as part of the purposive sampling method it is possible and even urged to expand the category/subject of resource persons using snowballing technique (based on relevant information, recommended names, and so on).

Having implemented the technique, interviewed resource persons have been cocoa stakeholders directly related with cocoa value chain in Majene Regency, namely farmer, collective trader at village/subregency level, big collective trader, production input provider, agricultural extension apparatus, and Forestry and Estate Local Government Agency Officer in Majene and officers from other relevant local government agencies.

### 3.5. ANALYTICAL METHOD

In response to the formulated problem, the study uses qualitative approach, that is, value chain analysis. Porter (2001) defines Value Chain Analysis as a tool to understand value chain which forms a product. The value chain comes from those activities which have been done, started from raw material provided by the supplier until end product received by consumer, including after sales service. The purpose of the value chain analysis is to identify value chain stages where actors of the value chain can improve product value for consumer or lowering the cost and work efficiently. Lowering the cost or increasing the added value can make a business or industry to be more competitive.

Based on the value chain analysis, there are two business activities, those are primary activities and support activities. Primary activities are all activities which directly related to give more value to the inputs and transform them to be product that is required by



consumers. Such activities include: inbound logistics, operation, outbound logistics, services, marketing, and selling. Support activities are all activities which support or enabling all the main activities to be function effectively. Such activities include: infrastructure, human resources, and science and technology.

The cocoa value chain analysis implemented in this study is limited only on mapping of existing problems at each cocoa business value chain in Majene. The analysis will not cover analysis of efficiency at each cocoa business value chain in Majene. By conducting the problem mapping, it is expected to find and analyse a leverage that can be used to solve the problem of cocoa business value chain development in Majene.

## IV. RESULT AND DISCUSSION

### 4.1. GENERAL PICTURE OF COCOA BUSINESS IN MAJENE

Cocoa becomes the main commodity chosen to be developed in Majene Regency since this commodity gives high contribution to the people's income and provides job opportunities in the region. In 2010, agriculture sector was the highest contributor to GRDP in Majene Regency, i.e. 51%, wherein 39% of the GRDP in agriculture sector comes from plantation subsector (Majene in Figures 2012).

Three subregencys have become cocoa product centers in Majene, i.e. Tammeroddo Sendana Subregency, Malunda Subregency, and Ulumanda Subregency. The cocoa total areas for the three subregencys in 2011, successively are 3,346 ha, 2,284 ha, and 796 ha. Total cocoa product of the three subregencys has reached 91% of the total product of cocoa in Majene Regency. The Malunda Subregency is the subregency with the highest product and number of cocoa farmers. Its product reached 940 kg/hectare with total number of farmer 2,225 families. Spreading of cocoa locations can be seen from the following Table 1.

Condition of supporting infrastructure such as roads is also inadequate. Roads with good quality mostly are in the capital of Majene Regency. It can be said that roads from and to cocoa product center are inadequate. This can impede flow of cocoa product distribution to the market. In addition, the burden of transportation costs that must be borne by the farmers is high due to bad condition of the infrastructure.

### 4.2. COCOA BUSINESS VALUE CHAIN IN MAJENE

Cocoa business chain in Majene consisting of at least four chains, namely value chain of input provider, value chain of cocoa cultivation, value chain of processing, and the last is value chain of trading. All the value chains examined in this study is only cocoa business value chain, and not included cocoa processing or processed cocoa products such as cosmetics and food.

**Table 1. Total Area, Production, Productivity, and Number of Cocoa Farmers in Each Sub-Regency of Majene Regency in 2011**

No	SUB-REGENCY	TOTAL AREA (HA)				PRODUCTION (TON)	PRODUCTIVITY (Kg/Ha)	NUMBER OF FARMER (FAMILY)
		TBM	TM	TTM/TR	TOTAL			
1	Tammerodo Sendana	378	2.888	80	3.346	2.298	796	1.629
2	Malunda	311	2.429	159	2.899	2.284	940	2.225
3	Ulumanda	243	1.113	65	1.421	796	715	1.226
4	Tubo Sendana	233	1.064	53	1.350	579	544	543
5	Sendana	172	1.039	18	1.229	532	512	1.024
6	Pamboang	120	687	51	858	239	348	358
7	Banggae Timur	152	638	15	805	218	342	525
8	Banggae	91	396	17	504	138	348	181
Total		1.700	10.254	458	12.412	7.084	4.545	7.711

Source: Majene Plantation Statistics, 2012

TBM = Cocoa Plant not yet produced  
 TM = Cocoa Plant has produced  
 TTM / TR = Cocoa Plant will not produce/destroyed plant

Detailed cocoa business value chain in Majene Regency can be seen from the graph 1 in the next page:

#### **4.2.1. PRODUCTION INPUT VALUE CHAIN**

The last value chain of cocoa business in Majene is production input value chain. The production input value chain is an input value chain in cocoa business value chain in Majene. This production input consists of means to start farming, means for maintaining the plants until harvesting, likes hoe, seed, and fertilizer. Production input for maintaining the plants are pruning shears, fertilizer, pesticides, while for harvesting is cutting shears.

At production input value chain, there are stakeholders that have the role, as production input trader, UPH, Provincial Government, Local Government, and non-governmental organization (NGO). Stakeholders that have the utmost role in production input value chain are production input trader, retailer or wholesaler, and UPH. Both stakeholders have direct interaction with farmers in provision of production input like fertilizer, seed, pesticide, and farming tools in the field, while the provincial and local governments have the roles in supply provision of fertilizer, seed, and pesticide through assistance programs for farmers. In Majene, there is also an NGO that once gave farmers tools like pruning shears.

To get production input that is needed, in general farmer buys it directly from production input retailer at village or subregency level. If the production input needed is not available, then the farmer can buy it from wholesaler in Polewali Mandar. There are some benefits obtained by the farmer if he buys at wholesaler, such as: lowering transportation cost, getting lower/wholesale price, etc.

Besides retailer and wholesaler, cocoa farmer can also buy production input from Agricultural Processing Unit (UPH). In Majene, there have been 4 UPHs developed through a program assistance namely National Movement to Increase Cocoa Production and Quality (GERNAS Cocoa). The UPH is managed by outstanding farmer group. The price of production input purchased through UPH is relatively the same with that through retailer. However, there is a benefit for farmer's group members who manage UPH due to the declined price (cheaper price) of the production input compared to that imposed to non-member of farmer group.

According to resource persons in the region, assistance received through GERNAS Cocoa activity are: pesticide with a brand name of 'Vigor' with a dosage of 0.5 liter/hectare, fertilizer with a dosage of 40 kgs/hectare, and handsprayer with a ratio of 0.2 unit/hectare. A package of production input assistance which is given through rehabilitation activity are

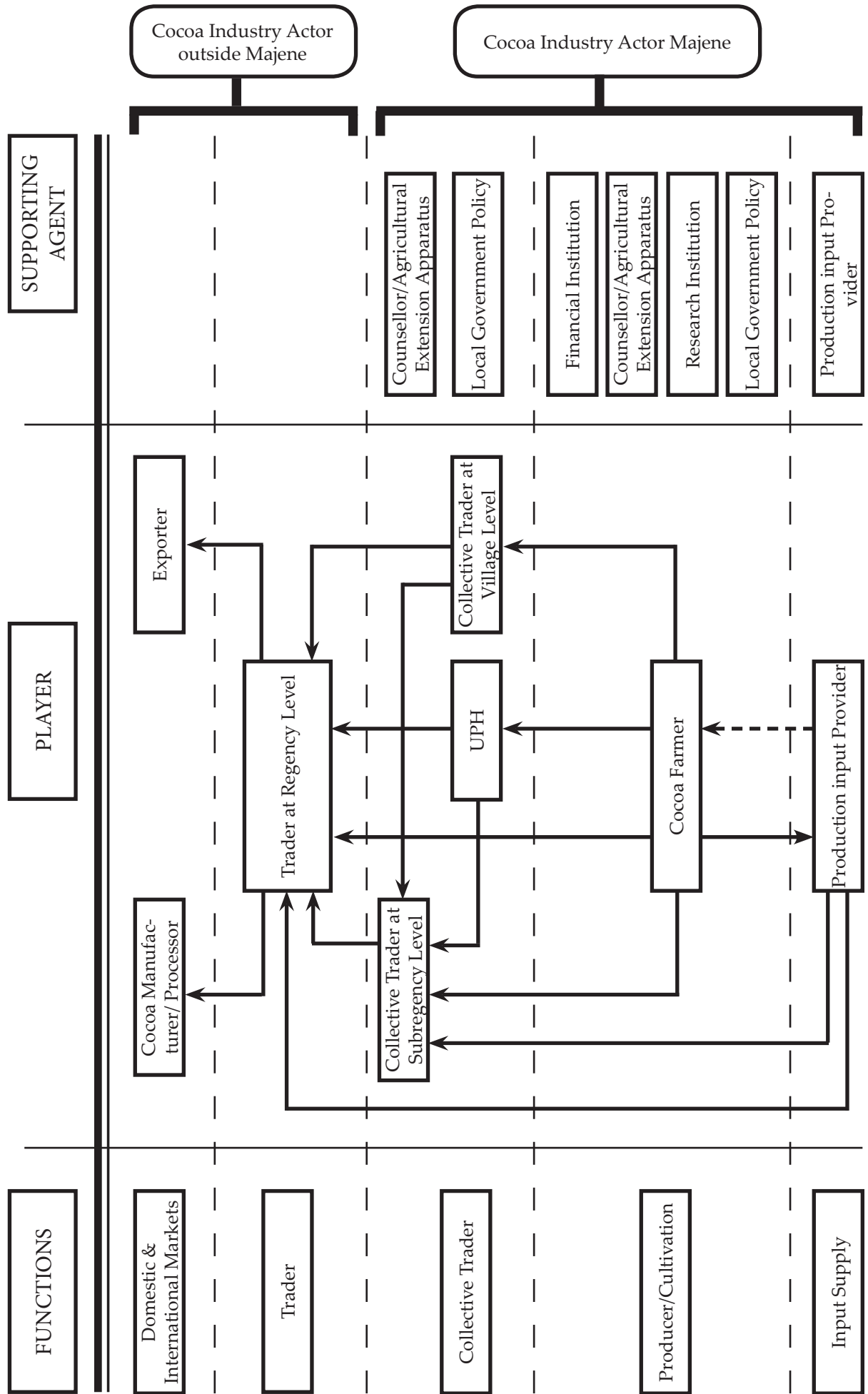
entres and side connection in the amount of 2,000/hectare, pesticide with a dosage of 0.3 liter/hectare, fertilizer with a dosage of 290 kgs/hectare, and handsprayer with a ratio of 0.2 unit/hectare. While during intensification activity, assistance provided are pesticide with brand name of 'Matarin' with a dosage of 0.8 liter/hectare, fertilizer with a dosage of 320 kgs/hectare, and handsprayer with a ratio of 0.2 unit/hectare.

In fact, the fertilizer provided for GERNAS program is not sold freely in the market. This is because such fertilizer has a special formula that is different from fertilizer generally sold in the market. It can be seen from the impact it caused on cocoa plantation using this kind of fertilizer. If using this fertilizer, cocoa fruits produced by one tree are much more than that produced using fertilizer commonly used. Besides, this kind of fertilizer is needed by farmer, in particular by farmers that have participated in GERNAS program, to maintain sustainability of cocoa product resulted from GERNAS seeds.

Problems occurred in production input chain is that so many farmers buy fertilizer and pesticide on credit to production input traders who are also collective traders. This system happens due to farmer's economically lack of ability in fulfilling their needs of maintaining their cocoa plantation. By this system, at the time of fertilizing, farmers that have no money to buy fertilizer and pesticide may owe to the trader. The debt will be paid back at harvesting season by cash or by cocoa seeds. This system has put farmers in a condition of "must" sell his cocoa seeds to the collective trader whom has lend them credit for fertilizer and pesticide. Subsequently, farmers have no choice to sell his cocoa seeds to other parties that give more profit. Letting this situation to happen without any action taken will mean that farmers will continuously be in such an apprehensive condition and will play a role as cocoa seed price taker only.

From the side of business capital, support from financial institution is very expected. In Majene, not many farmers have used bank's role for developing cocoa cultivation, in particular for business capital. Such business capital is meant a credit to develop cocoa business. Currently, there are only few cocoa farmers who propose credit to the bank. From field study result, it is found that farmers are reluctant to send credit proposal because they experienced complicated requirements from the bank, and the process was not simple. In fact, there has been government assistance in the form of revitalization funds, especially for capital, allocated in the bank. The revitalization funds can be used by farmers to help increasing capacity in capital on credit. Problems arisen in the use of the revitalization funds, that is, the bank in Majene has no technical staff to handle administration process for the credit proposal. This situation has been an impediment for farmers to access

Graph 1. Cocoa Trading Value Chain in Majene



the funds. If the farmers can access the revitalization funds, they can be strong in business capital, and they will have no problem to buy production input they need.

Total area and spreading locations of cocoa cultivation in Majene also have impact on the process of production input distribution. Majene area consists of coastal and hilly areas. Distribution of production input to hilly areas is still difficult; it needs transportation mode and a long distribution path. The low quality of roads also impedes distribution of production input. Finally, to distribute production input it cost a lot for transportation, and this is resulted in the increased price of production input for farmers in the hilly areas.

So far, university's role in the research concerning production input is not significant. Actually, research division of the local university should be able to make a certain formula for production input that is needed in cocoa cultivation. As has been known, fertilizer from GERNAS cocoa which is needed by farmers has a special quality. Having known this quality, soil condition should be researched. If the soil research is conducted, provision of production input could be made more appropriate for cocoa farmers in Majene. However, it is regretful that the local university is not able to contribute in development of production input which suits the climate and soil characteristics in Majene.

#### **4.2.2. CULTIVATION/ PLANTATION BUSINESS**

In the cultivation value chain, central position is on farm activities as well as farmer as the main actor. On farm activities among others are maintaining the plantation, such as cocoa pesticide spraying, cutting, fertilizing until harvesting. Other stakeholders in the cultivation value chain are local government, nurturing apparatus, and farmer group. There are some aspects in the cultivation value chain, such as:

##### **A. PRODUCTION**

Cocoa production in Majene has been implemented hereditarily. Most of farmers have their own agricultural land, with an average of 1-2 hectares per farmer. Currently, average production of cocoa plants in Majene is 0.95 tons/hectare/year. Such level of productivity is much lower than the optimum level of cocoa productivity which can reach 3 tonnes/hectare/year. Cocoa cultivation is implemented through the processes of planting, maintaining until harvesting. In general, cocoa plants will yield after 3 years of planting using seeds that are usually used by the farmers. While if side-connection method applied, harvesting can be done more or less 1.5 years application of the method. After planting, the next stage is maintaining of the plants which consists of

cutting until harvesting.

The purpose to maintain the plants by implementing cutting, fertilization, periodic harvesting, and sanitation is to minimize occurrence of pest or cocoa plant disease. Cocoa plant pest attack is still dominated by PBK pest, while cocoa plant diseases in general are fruit rotting and mushrooming. Fruit rotting and mushrooming often happen in rainy season. Cutting is done to shaping cocoa trees neatly, so there are not too much branches and the trees grown tall. This is to ease the growing up of cocoa fruit and the harvesting. Fertilization is done two times in a year. In addition to fertilization, to minimize pest attack, pesticide spraying is also implemented. Pesticide spraying is done every 7-10 days.

In practice, in maintaining the plants with average area of 1-2 hectares, usually farmers in Majene are helped by other people, i.e. by worker or other farmer (member in the farmer group) who in fact has a system of mutual cooperation in plantation business. A worker is usually paid Rp 250,000/person for one time fertilization, pesticide spraying and cutting the trees' small branches for each plantation. While in mutual cooperation system, maintaining the plants is done jointly and farmers' plants are maintained by turns. Such mutual cooperation in maintaining plants is usually implemented by farmer group.

In Majene, in general farmer that is routinely does the maintaining is an outstanding farmer. The impact is, the top farmer has such level of productivity which is higher than that of a non-top farmer. In general, farmer that has not been implementing plant maintenance intensively and periodically has no motivation as well as sufficient knowledge in plantation. Besides this problem, farmer's weakness in capital is also an impediment which makes farmer less taking care of his plants.

As has been mentioned previously, the problem of cocoa cultivation is not only pest attack, but also diseases as fruit rotting and mushrooming. The approach carried out by farmer to overcome the problem is by implementing plant maintenance such as plant sanitizing through plant cleaning, cutting, and fungicide periodically. Cutting is done to allow sunray shining the plants therefore level of humidity in the cocoa plantation is not too high to cause fruit rotting.

In order to maintain productivity, Local Government and field agricultural extension apparatus also participate. The role of the local government and agricultural extension apparatus is very significant in giving motivation and knowledge to the farmers. Agricultural extension services given to the farmers are conducted in each village. Presently, the condition of agricultural extension apparatus in Majene Regency is still inadequate both in quantity and in quality.

In fact, the ideal number of agricultural extension apparatus assigned is one person for one village, but this has not been fulfilled due to insufficient number of agricultural extension workers. In addition, from the capacity point of view, in general agricultural extension workers have no background on plantation, rather, on food crop. For that reason, it often happens that cocoa farmer 'teach' the agricultural extension workers when they are on duty in the field.

Problems that are faced by agricultural extension workers are not only their quantity and quality. Institutional problem is also a reason for their services being not optimum. Currently the existing organization for agricultural extension workers is the Agency for Food Security and Implementation of Agriculture, Fisheries, and Forestry Extensions. Such terminology of the institution makes the agricultural extension workers can not perform their tasks optimally because there is no special budget allocation for operational costs for agricultural extension services in plantation area. This is because the existing budget is more focused for agricultural extension services in food crops. Limited budget has caused agricultural extension services for cocoa farmers more difficult due to minimum support for the operational costs.

From policy support point of view, there has not been any policy that directly arranges for cocoa business. Existing policies related to cocoa business are SOTK local regulation which arrange for agricultural extension worker's institution, and APBD local regulations. With no policies especially arrange for, or directly related with cocoa business, the development of cocoa business can not be carried out optimally. Whereas a policy instrument such as a local regulation can be used as an incentive or as a legal base for cocoa business development, mainly for cocoa cultivation. If the cocoa development policy, in particular in cocoa cultivation value chain can be optimized, it may encourage better process of directing and patterning cocoa cultivation in reaching its target of productivity increase in Majene.

## **B. FARMER'S INSTITUTION**

At the production value chain, there are some institutions, such as institution for plantation management, and farmer organization in the form of farmer group. Institution for plantation management has activities such as sharing work with other farmers of the group in taking care of the cocoa plantation; while institution in the form of an organization is the farmer group. The farmer group in principle has some functions, those are: as a place for cocoa farmers to learn, as a discussion forum for cocoa farmers, and also as a place to conduct policy advocacy for cocoa farmers. In Majene, establishment of a farmer group is at farmers' own initiative. However, presently the condition of majority of the registered farmer groups

is no longer functional. This is because establishment of the farmer groups is based on the motive to get assistance programs from the government, although some.

Other institution in the production value chain that has been established is an agricultural cooperative. The agricultural cooperative functions as a means to conduct supporting function for cocoa farmer business activities in Majene. However, the farmer cooperative that has been established in the past is not optimally functioning anymore to support farmer's activities now. This is due to a misuse in management of the cooperative. The misuse management has further caused cocoa farmer's distrust towards the cooperative institution currently, since they are worried that the financial misuse will be repeated again in the future.

As a consequence of such weak position of farmer institution in cocoa product value chain, farmers have no power on production quota, with further impact on weakening of farmer's bargaining power in cocoa trading chain in Majene. To overcome this problem, Majene Regency Local Government has established a crop processing unit (UPH) as an embryo for farmer's institutional strengthening and as a place for farmers to do joint marketing. By such joint marketing, it is expected that farmers could have a higher bargaining power compared to that if done individually. A UPH is a building equipped with various processing tools that can be used by farmers as well as farmer groups to help further process of cocoa seeds and also to receive cocoa seeds from farmers and give them a good price. In its establishment, a UPH used funds from GERNAS program and also involved outstanding farmer groups in provision of land and also in its management. The reason used to assign a certain outstanding farmer group to manage UPH is based on the capacity of the farmer group that has been possessed by the outstanding group and on the location of the farmer group which is accessible and can be reached by the farmers.

Besides building, capital and production tools for a UPH are one of the activity packages in the GERNAS Cocoa program. In the package, regency which becomes executor of GERNAS program will get an assistance of one UPH Unit per year. During 2010-2012, there have been three units of UPH built in Majene Regency. The three units are located in Sendana Subregency (2010), Tammerodo Subregency (2011), and Malunda Subregency (2012). The UPH units were determined to be located in the three selected subregencys since they are cocoa centers in Majene. While selection of farmer groups to manage UPHs was based on farmer groups' capacity and strategic location of the farmer groups.

As has been mentioned above, the purpose of establishing a UPH is to provide an initial effort

to strengthen farmer group. Ideally, such initial institutional strengthening shall be closely assisted until the institution self-supporting. Currently, the assistance given to UPH is not conducted optimally. The Local Government as the party that has a concern to strengthen farmer group institution only played its role when establishing the UPH, and from then on there has been no continual nurturing program for the UPH.

Although there have been UPHs in several sub regencys, yet farmers in the sub regency that has a UPH still sell their cocoa seeds by their own and not through the UPH. There are some reasons for farmers not to sell their cocoa seeds to UPH; among others, due to the 'ijon' system taken by the farmers, i.e. farmers selling cocoa seeds long before the harvest to the production input trader who is also collective trader, has forced the farmers to sell their cocoa crop to the trader. Covered area of a UPH that can not cover total area of the sub regency has also resulted in farmer's choosing to sell cocoa seeds to collective trader that comes to their housing.

Several efforts have been made to drive farmers to sell their cocoa seeds to UPH. Such efforts include provision of business capital (credit for capital), provision of production input (fertilizer, pesticide, and agricultural tools) as well as nine items of daily basic needs on credit, training conducted by Majene local government and UPH manager, and other facilities such as facility to dry cocoa seeds and storage place when cocoa price in the market is low. Such efforts are carried out in order to enable UPH to be beneficial for farmers, so that farmers will be willing to cooperate with UPH.

One of the best practices to be applied at other UPH is the practice of giving brand name "UPH Malunda" to cocoa seeds that are sold through UPH. The benefit obtained by cocoa farmer, member of UPH Malunda is that he can sell his cocoa seeds directly to big trader without any deductions, since the brand name UPH has been a guarantee for the big trader.

### **C. HUMAN RESOURCES**

Human resource is an important factor in the production. In this case, human resource has an important role in carrying out on farm as well as off farm cocoa plantation. To improve quality of human resource in cultivation chain, there are many stakeholders, such as Local Government, agricultural extension apparatus, NGOs, and cocoa farmers themselves. The Local Government can have the role in conducting training programmes to increase productivity. Agricultural extension apparatus has the role to connect the Local Government programmes to the farmers, while NOGs can also have a role in accompanying farmers in the process of farmer's human resource quality improvement.

The levels of knowledge and skill of cocoa farmers in Majene are stil various. Farmers that have become "outstanding farmers" are those who have knowledge and good awareness in maintaining cocoa plantation. The outstanding farmers also often conduct training for other farmers in the method of good cultivation. In general, the main problem of cocoa farmer human resource is lack of motivations in maintaining plantation, in participation in agricultural extension and training, and in knowledge of the standards of quality and price, which resulting in farmers selling cocoa seeds after just drying them only, and often as bulky drying (minimum drying of cocoa seeds, usually only one day drying).

The Local Government effort to improve farmer's capacity has not been optimum. Although there have been many programmes conducted by the Local Government involving agricultural extension apparatus, but such programmes have just been limited only in maintaining plantation, and has not included, for example, strengthening farmer's capacity in organization management. There shall be agricultural extension services or training in organization management conducted for farmers so that they can form a strong farmer institution. Role of agricultural extension apparatus is also not optimal since their number is not sufficient, therefore they can not cover services for all the farmers in Majene.

The impact is, until now there have been farmers that have no motivation to maintain their cocoa plantation. In fact, maintaining plantation is the main factor to be successful in cocoa plantation. Farmers have no motivation to maintain the plantation since they have no resources to buy production input that are required. The reason for having no resources is due to low profit margin received by the farmers because cocoa price is low. Further impact is that farmers are indolent to participate in agricultural extension and training activities in relation with plantation maintenance, whether it is conducted by Majene Regency Local Government or by their own group of farmers, since they feel that they get no direct benefit from plantation maintenance activity.

#### **4.2.3. HARVESTING AND PROCESSING/AFTER HARVESTING ACTIVITY**

Processing or after harvesting activity that is done after cropping is picking following by fruit sorting, breaking, and then fermentation or direct drying. After all the processes done, cocoa seeds are ready for packing or for marketing to the traders.

##### **I. Fruit Picking/Harvesting**

The first step of harvesting is fruit picking. Fruit picking is done to fruits that are ready for harvesting. Fruits that are ready for harvesting have the following characteristics:

- Change in colour from green to orange yellow +/- 50%
- Ripen fruit in its center is dry, seeds inside are loosen from fruit skin, so there is space between seeds and fruit skin
- If shaken, the fruit will make a sound

In picking process there are some conditions to follow by the farmers:

- Pick only fruits that are fully ripen using a knife or a sharp sickle having a punting pole
- Picking rotation is every 7 or 14 days
- Submerge rotten or infected fruit in the soil ground at 50 cm depth at the edge of the plantation
- Harvesting shall be done carefully so as not to cause a damage to the tree trunk/fruit stick.

## II. After Harvesting Activity

After fruit picking, there are several steps of cocoa after harvesting activity that should be done, those are:

### 1. Fruit sorting

Ripen fruits are harvested, put into a basket, then bring it to a fruit gathering place inside the plantation. After that, sorting is done in two steps:

#### a. Sorting I

First sorting made to the fruits, i.e. separation between good and fully ripen cocoa fruits from those in bad condition. After sorting I made, the next process is the Sorting II.

#### b. Sorting II

Sorting process is repeated to select carefully fruits to be broken or taken its cocoa seeds. There are some indications to be used in selection of cocoa fruit before taking its seeds:

- Poor quality fruits infected by fruit larva
- Unripen fruits/mispicked
- Seeds from Sorting I step that are mixed with soils
- Seeds scattered on the ground, leftover fruits after eaten by rats/squirrel

### 2. Fruit Breaking

After fruit sorting into two groups, i.e. good quality and bad quality groups, fruits of good quality are broken at separated place on a gunnysack. Fruit breaking process is to hit fruits by wooden stick, try not to break/damage the seeds. After that, take the seed out of the fruit and put them into a container.

### 3. Direct Drying and Fermentation

There are two processes of cocoa seeds before sending them to a plant, i.e. fermentation and drying. Fermentation is done using a tool has the shape of a box; cocoa seeds are put into the box for 4-6 days. Then, cocoa seeds that have been fermentated are dried for +/- 5 days until their water content is 7-8. The fermentation process smells aromatic and can give such quality of cocoa seeds that meet the industry

requirement.

Another cocoa seed processing is drying. This process only needs drying in the sun on a media or a layer after cocoa seeds harvested. The process takes about 2-3 days, faster than fermentation process. However, drying process using this method of drying in the sun has a limitation, i.e. if it is rainy season where the sun's rays are not as much as that in dry season.

Most of cocoa farmers in Majene do not use fermentation process for cocoa seeds. Rather, they use the method of direct drying. Besides taking more time (4-6 days), the main reason for the farmers not to use fermentation is the little discrepancy in price for cocoa seeds between those fermentated and those dried in the sun, i.e. about Rp 1,000/kg. Farmers have valued that costs needed in a fermentation process is higher than that in drying in the sun. In addition, another factor is that farmers need a quick cash flow. Therefore, farmers choose to dry cocoa seeds in the sun since a shorter process of drying means farmers can sell cocoa seeds quicker than if selling fermented product.

### 4. Farmer's Institution

To facilitate farmers to do fermentation process, the Local Government through GERNAS program currently has established Crop Processing Units (UPHs) at some locations. At the UPH there are many tools available for cocoa seeds fermentation or drying in the sun. Such tools are obtained from GERNAS program implementation. While the land used for the UPH building is provided by the farmer group that is trusted to manage the UPH. Having the UPH in the area, at least farmers can be helped and they are no longer selling cocoa seeds of just dried in any old way. In addition, at rainy season, UPH role can be optimized since there is a drying machine at a UPH, although the drying machine may decrease the taste and aroma of cocoa seeds and needs considerable amount of firewood. Therefore, the machine will be used only in an urgent situation, that is, there are still a lot of unprocessed cocoa seeds.

Currently, UPH presence as a facility for cocoa seeds processing has not been optimal since there are not many farmers coming to process cocoa seeds at the UPH. This is because farmers prefer to sell cocoa seeds, although with lower quality, to collective traders, since the collective traders come to the farmers door to door. At one side, such visits done by the collective traders make farmers more comfortable, and they do not need to spend transportation costs for bringing cocoa seeds to UPH. In a processing chain, the Local Government's role has just been facilitating in provision of UPH using GERNAS funds. There has not yet been any other effort to drive processed product in the form of fermented seeds. One of the proposals presented by the Local Government is to implement Local Regulation concerning fermentation. Through

the Regulation, the Local Government can encourage farmers to do fermentation process on part of, or on the whole of their cocoa seed crop. Such Regulation can also arrange for cocoa seed selling system, both for fermented and non-fermented seeds, in particular arrangement in cocoa seed selling to collective traders. In addition, the Local Government's role can also be optimized through an increased UPH capacity in cocoa seed fermentation and dry- in- the sun processes to enable it to receive much more supply of cocoa seeds from the farmers.

On the other sides, farmers have not realized the importance of cocoa seed processing. In fact, appropriate cocoa seed processing can give more profit, considering that the industry or cocoa processing plant needs fermented cocoa seeds. Therefore, it is important to increase agricultural extension services to farmers so that farmers are motivated and realize the real needs of cocoa industry. Furthermore, to support implementation of the Regulation concerning fermentation, the Local Government shall provide direct access to the factory or industry for the cocoa farmers, so that they can sell directly fermented cocoa seeds and get higher profit. This is in turn will make farmers interested in applying fermentation process for their cocoa seeds.

#### **4.2.4. DISTRIBUTION AND MARKETING**

Effective marketing is extremely needed in selling cocoa seeds. One of such factors that determine effective and efficient marketing is, at least, marketing value chain. A few marketing value chains will have an impact on a good price level for the farmer. A higher cocoa seed selling price, which means an increase in price difference received by farmers, will make farmers be motivated to increase their production. It implies that an increase in productivity is not sufficient; rather, it must be followed by refinement/improvement in marketing channels. One of the improvements in marketing chain is to make the distribution chain or cocoa trading from farmers until cocoa factory efficient. Three main channels of cocoa marketing at Majene Regency are as follows:

- 1) Farmers »» Village Collective Trader »» Sub Regency Collective Trader »» Distributor »» Factory
- 2) Farmers »» Sub Regency Collective Trader »» Distributor »» Factory
- 3) Farmers »» UPH »» Sub Regency Collective Trader »» Factory

Farmers usually sell cocoa seeds to collective traders that come door to door. Such collective traders that come door to door are members of Sub Regency collective traders, so that after taking cocoa seeds from the farmers, they sell them to Sub Regency traders. Besides, farmers can also sell cocoa seeds to Sub Regency traders and not through village collective traders. With the three channels, farmers can not sell

cocoa seeds directly to distributor or factory. Here it can be seen that farmer's access to factory or industry has not been available. In fact, if farmers can sell cocoa seeds directly to the factory, price difference that can be gained may reach Rp 4,000/kg. This is certainly very advantageous for the farmers.

Distributor of cocoa seeds does not come from Majene, but from Polewali Mandar. One of the distributors come into Majene is CV Bumi Surya. Although CV Bumi Surya is located in Polewali Mandar, but it buys cocoa from areas covering almost all the regencies in West Sulawesi, such as Majene, Mamasa, Mamuju, and Polewali Mandar. The price determined by Bumi Surya for buying cocoa seed from collective traders refers to price of the international cocoa commodity exchange at New York, hence it is very fluctuant. As the tactics to face price fluctuation, some Sub Regency collective traders make unwritten contract with CV Bumi Surya.

The unwritten contract is an agreement in cocoa buying price with a certain volume for a maximum duration of 5 days. By such agreement, cocoa seed buying price in 5 days will be determined in advance thus within the 5 days buying price of cocoa seeds will be fixed (unchanged). The cocoa seeds are sold by the distributor (CV Bumi Surya) to national factories, such as PT Bumi Tangerang, PT Petra Food, and PT General Food. Buying and selling system used is a contractual system based on volume. Such contract is an agreement on cocoa seed volume that will be sent within one certain period, while cocoa seed price is not included in the contract since it follows the price applied at international cocoa commodity exchange at New York.

A policy to impose tax on export of cocoa has a positive impact on the farmer's income. Implementation of the Minister of Finance's Regulation (PMK) No. 67/PMK.011/2010 regarding policy in export duty imposed on export of cocoa seed in the amount of +/- 5% has encouraged distributors to sell cocoa seeds to in-country factories since it is considered more profitable compared to that if exported abroad for foreign industry. The positive impact resulted from implementation of the export duty is that supply for industry in the country is available. Meanwhile, farmers can enjoy profit resulted from the increase in cocoa buying price. This is because the cocoa processing industry developed Buyer Station at production center, and as a result it gives farmers profit. Before implementation of BK, farmers received only 80% of the terminal price, while after implementation of BK they received more than 90% of the terminal price. However, it is regretful that such increase in the price received by the farmers is not followed by an increase in their productivity.

Until now there has been no factory that buys directly cocoa seeds from farmers in Majene. Some



of big factories such as PT Bumi Tangerang and PT Petra Food have had an intention to cooperate directly with the farmers. But such cooperation has not been implemented since farmers are not ready to meet cocoa seed volume and quality as required by the factories due to low production capacity of the farmers. One of the ways for farmers to fulfill the quota is by establishing a joining farmer group or to make use of the presence of the joining farmer group. By making use of the joint farmer groups, a big volume of cocoa seeds will be gathered and can be supplied to meet the quota needed by the factories. In addition, the cocoa seed quality will be maintained since the joint farmer groups will only sell cocoa seeds having good standard of quality.

Local Government's role in the marketing chain has not been seen. There has been no effort of the Local Government to participate in marketing cocoa seeds from Majene, or to open direct access to the factory. In addition, there has been no regulation that arranges cocoa trading in Majene. In fact, a regulation that arranges cocoa trading can be used to create or open market access or shorten the marketing chain. Such regulation can also be implemented to maintain quality of cocoa product of Majene in accordance with requirement of the industry.

Another way to make cocoa seed acceptable by the factory is through certification of the cocoa seed in Majene. The purpose of the certification is to indicate that the cocoa product which will be traded has met such standard and qualification applicable internationally. Having such certification a cocoa farmer can get profitable margin, which amount is usually Rp 2,000/kg. However, the cost for certification is considerably high, since the process that must be followed to get it involves some steps. Due to such high cost, there are not many farmers do the certification.

Stakeholder with apparent role in marketing chain is collective traders at village and sub regency levels. Unfortunately, trading system used is a system where trader buys product from the farmer long before the harvest ('ijon' system), therefore farmer can owe and pay back later by a certain volume of cocoa seed product. This condition resulting in that, farmer has no power and becomes only as a price taker.

Another problem which is not less important is that there are no infrastructure provided appropriately, such as roads, to support distribution and marketing process. Topographical condition in Majene, which is mostly hilly, has been a constraint for the farmers to marketing their product. Currently not all cocoa centers have good roads, in particular cocoa center at hilly area. As a consequence, cost for distribution of cocoa seeds from production center to market place is high. Such condition of deteriorated roads does not only cause high cost on product distribution, but

also on production input distribution for cocoa center areas which roads are deteriorated.

#### **A. Farmer's Institution**

Until now there has been no institutions at cocoa marketing chain in Majene which accommodate transaction process between seller and buyer. Marketing is done mostly by farmers directly to collective traders at village or sub regency levels. There is no market that is available as a place for transaction between farmers and collective traders.

In addition, a forum or partnership between cocoa farmers and other stakeholders such as banks, collective traders, and factories has not been developed yet. In fact, having such a forum, agreements between cocoa business actors and farmers can be made. Formation of a forum or partnership can result in good communication, not only between Local Government and farmers, but also between Local Government and factories or cocoa seed processing industries.

#### **4.3. FUTURE PLAN OF THE LOCAL GOVERNMENT OF MAJENE REGENCY**

Many problems faced by business value chain actors, in particular farmers in Majene Regency should be overcome together. It is not only Forestry and Plantation Agency of Majene, other actors like farmers, UPH, and businessmen shall support solution of the problems.

Majene Local Government through Forestry and Plantation Agency has had a plan in the future to improve cocoa value chain, those are:

- Improvement of cocoa seed quality through training and agricultural extension services to farmers regarding the importance of cocoa seed quality. An increase in quality of the product will increase the price, and consequently it will increase farmer's income.
- Increase the volume of cocoa seed product to meet demand of the entrepreneur. Promotion conducted by Local Government can draw the interest of entrepreneurs to buy cocoa seeds directly from farmers in Majene. However, farmers have not been able to meet the quality standard and volume of cocoa seeds required by entrepreneurs. Therefore, the Forestry and Plantation Agency is now preparing joint marketing through the three UPHs in Majene Regency; the three UPHs will be coordinated by one assigned personnel. With the same purpose, the role and power of the farmer groups shall be increased. Integration of the three UPHs is aimed to collect all the cocoa seed product from the farmers in order to meet quality standard and volume of cocoa seeds desired by the entrepreneurs.

In brief, organizational structure plan of the cocoa farmers expected by the Forestry and Plantation Agency is as follows:

The local government of Majene Regency will also strengthen farmer groups through UPH, although it is not easy. The limited number of UPHs (3 units) is considered not sufficient to accommodate all the farmer product in the three sub regencys. Availability of one UPH in each sub regency of cocoa product centers has not become a solution for the farmers to sell their product of cocoa seeds to the UPH considering the long distance between cocoa plantation with the UPH. Therefore, UPH management should play an active role in the field, i.e. buy cocoa seeds directly from farmer houses. Besides the active role, it is important to give farmers some profits or incentives to persuade them to sell their cocoa seeds at UPH. Some of the efforts that can be done are provision of production input (fertilizer, fungicide and pesticide) and basic needs for farmers by credit, training and intensive agriculture extension services, provision of cocoa seed drying facility, and provision of information regarding market price of cocoa seed every day.

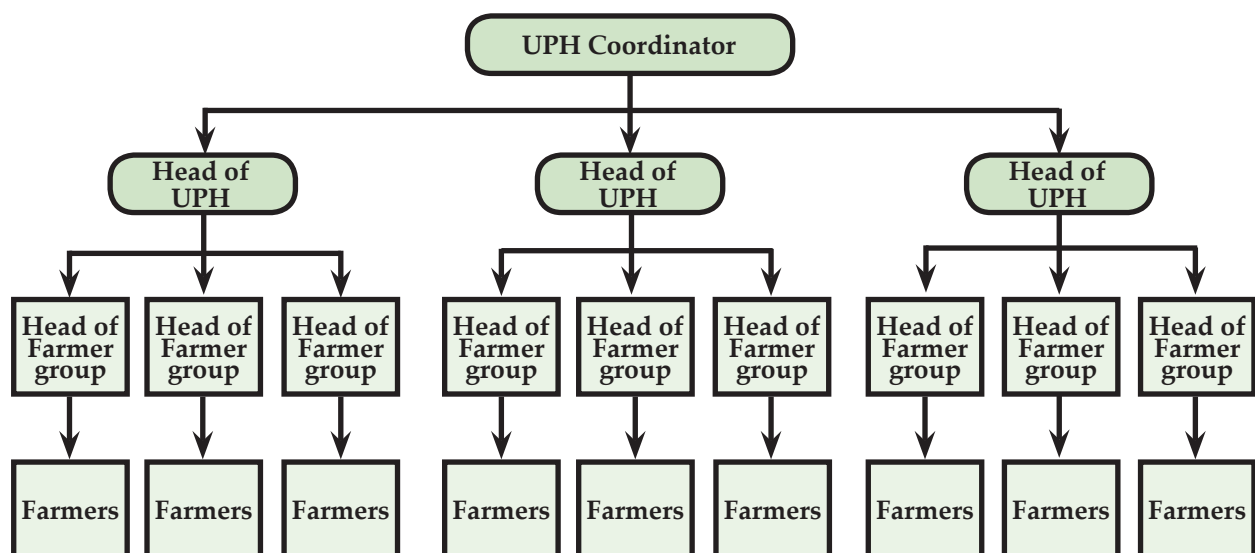
Solution for value chain efficiency through strengthening of UPH needs active role not only of the Local Government, but also of the UPH management and the farmers themselves. The farmers shall be given motivation to make them willing to have join marketing in accordance with the plan made by the Local Government. By having join marketing, farmers will get higher profit margin compared to that if they sell cocoa seeds by their own.

## V. CLOSING

From the above explanation, some conclusion can be drawn regarding the problems of cocoa value chain in Majene:

1. From the farmer side, awareness to sell cocoa seeds having a certain standard of dryness is still low. There are still many farmers selling cocoa seeds with such dryness resulted from drying up in the sun, while on the other side, the industry needs cocoa seeds of fermentated quality.
2. Trading system applied between production input provider and farmer is still a credit system. This situation will make it difficult for farmers because when harvest time comes, cocoa seed price may be pressed by the production input provider who also has a profession as a collective trader. In fact, even an 'ijon' trading system occurs. The ijon system is usually applied by collective trader at the village level, where farmers at the village have debt to them because they have no capital or good cash flow for their daily needs as well as for taking care of their plantation.
3. Existing organization such as farmer group or joined farmer group has not been able to strengthen farmer's bargaining position in the market because the institution is just an initiative only. Joined farmer group is also not functioning, although it presents; the parties that are more active are farmers and farmer groups.
4. There have not been any regulation issued by Local Government of Majene that specifically arrange for cocoa production or cocoa seed standard, whereas such a special regulation, if implemented, may help farmers in maintaining quality of cocoa seeds as desired by the enterprise or industry such as fermented cocoa seeds.
5. There is no direct marketing access for cocoa farmers in Majene. Marketing still depends on collective trader. There is no factory that opens direct access for farmers or directly comes to farmers.

Figure 2. Organisational Structure Plan of the Cocoa Farmers in Majene Regency



6. Coordination and synchronization between Provincial and Regency Government in implementation of GERNAS are still poor. It can be seen from different schedules of procurement and implementation.

Proposed Follow Up:

1. It is required to conduct farmer's capacity building including in knowledge about cocoa seed product processing and marketing. This is very important for farmers to be self-reliant in carrying out off-farm activities.
2. It is required to issue a special regulation on arranging quality standard of cocoa seed which enabling compliance of cocoa product quality with factory quality requirement.
3. It is required to pursue establishment of an institution and carry out institutional strengthening for cocoa farmers. The institution can take a format of association or cooperative. Having the presence of such an association, it is expected that cocoa farmers in Majene can have power in the marketing.
4. Expansion of market access for farmers, facilitated by the Local Government. The purpose of the expansion is to give an opportunity for farmers to make a contract with the factory. Having the opportunity to make a contract with factory, farmers will get appropriate price for their cocoa seed product.
5. It is required to provide technical assistance and nurturing for farmers so as to make farmers have an understanding and awareness of the importance of good cocoa seed quality that meets the factory requirement. By maintaining the good quality of cocoa seed, farmers will get a trust from the factory and can have a contract.
6. It is required to make a forum and partnership with all cocoa stakeholders in Majene. The benefit to have such a forum is that it can be a place to discuss all the problems related with cocoa occurred in Majene. In addition, in such forum a partnership format beneficial for all the stakeholders can be formulated.
7. Besides institutional strengthening, attention should be paid to infrastructure aspect in analyzing cocoa value chain. Poor infrastructure condition can increase costs for transportation of cocoa seeds from the plantation to the market. Therefore, infrastructure development at cocoa production centers (production roads) is required to ease access to the market for cocoa commodity.
8. Coordination between Local Government also should be improved. Having such good coordination, a harmony in the programs between program of the province and programs of the regency/city can be well realized. ■

## Appendix 1. Problems and Follow-up Plan of Cocoa Value Chain Development in Majene Regency

THE FACTS – OBJECTIVE CONDITION	SOURCE OF PROBLEMS	ROOT OF PROBLEMS	FOLLOW UP PLAN	RESPONSIBLE PARTY
<b>PRODUCTION INPUT:</b>				
<ul style="list-style-type: none"> <li>• Limitedness of fertilizer, pesticide, and agricultural tools owned by farmer</li> <li>• Absence or interruption of fertilizer supply used for GER-NAS</li> <li>• Covered and scattered plantation area which becomes cocoa product centers has various typology and contour</li> <li>• There have been several stores at sub regency level selling production input</li> </ul>	<ul style="list-style-type: none"> <li>• Farmer's capability in capital is minimal</li> <li>• Fertilizer that is used in GER-NAS can not be found in the market</li> <li>• Poor infrastructure condition at cocoa product centers</li> </ul>	<ul style="list-style-type: none"> <li>• Farmer's ability to provide production input is minimal</li> <li>• Lack of supporting infrastructure for distribution of production input</li> <li>• Funds or priority of infrastructure development to cocoa product centers are not available</li> </ul>	<ul style="list-style-type: none"> <li>• Strengthening farmer's capability in capital by increasing bank's role</li> <li>• Increase UPH role as one of the means of production input distribution</li> <li>• Build infrastructure, especially roads to cocoa production centers area</li> </ul>	<ul style="list-style-type: none"> <li>• Local Agency of Forestry and Estate</li> <li>• Local Development Plan Agency</li> <li>• Local Agency of Cooperative, Industry, and Trade</li> <li>• Local Agency of Public Works</li> <li>• Banks</li> <li>• UPH</li> <li>• Production Input Distributor</li> </ul>
<b>CULTIVATION/ PLANTATION BUSINESS:</b>				
<p><b>Production:</b></p> <ul style="list-style-type: none"> <li>• Land ownership of 1-2 hectares per farmer with productivity level of 0.95 tons</li> <li>• There are still plantation which are not taken care appropriately</li> <li>• There are still pest and disease attacks to cocoa plants</li> <li>• In general, cocoa cultivation is hereditary farming</li> </ul>	<ul style="list-style-type: none"> <li>• Productivity level is still low compared to the optimum level of 3 tons/ha</li> <li>• Farmers are unwilling to take care of their plantation</li> <li>• Levels of awareness and knowledge of farmers are low</li> <li>• No regeneration of farmers in cocoa cultivation</li> </ul>	<ul style="list-style-type: none"> <li>• Farmers do not have sufficient capacity and knowledge</li> <li>• Cocoa farming is not seen interesting for young generation</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out intensive nurturing to farmers so as to make farmers capable in taking care of their plantation</li> <li>• Improvement in farmer's knowledge to use fertilizer is required</li> <li>• Institutional strengthening and improvement of agricultural extension worker's capability in cocoa cultivation continually to support farmer's capacity building.</li> </ul>	<ul style="list-style-type: none"> <li>• Local Agency of Forestry and Estate</li> <li>• Local Development Plan Agency</li> <li>• Local Agency of Cooperative, Industry, and Trade</li> <li>• Agricultural Extension Agency</li> <li>• Banks</li> <li>• UPH</li> <li>• Production Input Distributor</li> <li>• Expert Staff of Agriculture Area</li> </ul>

THE FACTS – OBJECTIVE CONDITION	SOURCE OF PROBLEMS	ROOT OF PROBLEMS	FOLLOW UP PLAN	RESPONSIBLE PARTY
<b>CULTIVATION/ PLANTATION BUSINESS:</b>				
<b>Institution:</b> <ul style="list-style-type: none"> <li>• There are about 1,000 farmer groups; only 10% are still functional</li> <li>• There are Product Processing Units which were built using GERNAS funds and are managed by farmer groups</li> </ul>	<ul style="list-style-type: none"> <li>• Farmer group being only seeking for profit from local government's assistance</li> <li>• Cocoa farmer's organization is not strong</li> <li>• Nurturing of farmer group has not been carried out integratively</li> </ul>	<ul style="list-style-type: none"> <li>• Nurturing and orderliness of farmer group have not been effectively directed</li> </ul>	<ul style="list-style-type: none"> <li>• It is required to have a policy on arrangement and nurturing of farmer groups</li> </ul>	<ul style="list-style-type: none"> <li>• Legislative Assembly</li> <li>• Local Agency of Forestry and Estate</li> <li>• Local Development Plan Agency</li> <li>• Local Agency of Cooperative, Industry, and Trade</li> <li>• Agricultural Extension Agency</li> <li>• Banks</li> </ul>
<b>Human Resource:</b> <ul style="list-style-type: none"> <li>• Number of agricultural extension workers is 42 (employee, not officially confirmed in the job, and private agricultural extension workers)</li> <li>• Farmer's capacity in handling plantation is low</li> <li>• Generally, cocoa cultivation is carried out by farmers of 40 years old and up</li> </ul>	<ul style="list-style-type: none"> <li>• Lack in number of agricultural extension workers</li> <li>• Farmer's capacity to manage cocoa plantation is inadequate</li> <li>• Farmer's regeneration process has been declining</li> </ul>	<ul style="list-style-type: none"> <li>• Insufficient quality and quantity of agricultural extension workers</li> <li>• Farmer's capacity in knowledge, skill, and attitude is poor</li> </ul>	<ul style="list-style-type: none"> <li>• Increase quality and quantity of agricultural extension workers</li> <li>• Increase farmer's capacity especially in off-farm capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Agricultural Extension Agency</li> <li>• Local Agency of Forestry and Estate</li> <li>• Local Development Plan Agency</li> <li>• Local Agency of Cooperative, Industry, and Trade</li> </ul>
<b>POST HARVESTING TREATMENT :</b>				
<ul style="list-style-type: none"> <li>• Cocoa seed quality is still low and has not met the standard as desired by the factory</li> <li>• After harvesting process, such as drying is done any old way</li> <li>• Most of farmers do drying cocoa seeds only for 1 day then sell them directly to village trader</li> </ul>	<ul style="list-style-type: none"> <li>• The farmer needs for quick cash flow, therefore farmers need income every day</li> <li>• Supporting infrastructure owned by farmers to do further processing is inadequate</li> </ul>	<ul style="list-style-type: none"> <li>• The absence of tools to do good processing of cocoa seeds</li> <li>• Farmer's knowledge in processing harvested cocoa seeds is poor</li> </ul>	<ul style="list-style-type: none"> <li>• Increase farmer's capacity through agricultural extension service programs related to post harvesting treatment</li> <li>• UPH capacity building in particular in tools matter</li> </ul>	<ul style="list-style-type: none"> <li>• Local Government</li> <li>• NGO</li> <li>• Financing institution</li> <li>• Buyer</li> </ul>

THE FACTS – OBJECTIVE CONDITION	SOURCE OF PROBLEMS	ROOT OF PROBLEMS	FOLLOW UP PLAN	RESPONSIBLE PARTY
<b>POST HARVESTING TREATMENT:</b>				
<ul style="list-style-type: none"> <li>The means to be used for drying is not appropriate; farmers still do drying at road sides or at other places that are not clean</li> </ul>	<ul style="list-style-type: none"> <li>Tools provided at the UPH are inadequate to accommodate all harvested cocoa seeds of the community</li> </ul>			
<b>MARKETING AND SELLING PRICE :</b>				
<ul style="list-style-type: none"> <li>Cocoa price is fluctuative, following the price of the New York commodity stock exchange: the price is between Rp 17,000 – Rp 25,000 (water content quality of 7). While at the farmer level, the price is between Rp 6,000 and Rp 7,000/kg.</li> <li>Farmers are more likely to sell directly to village trader, although the price is low; this is due to the needs for money</li> <li>Farmer's level of knowledge concerning cocoa seed quality that meets the standard/market requirement is poor</li> <li>There is still 'ijon' system (sell long before harvest time) applied by collective trader</li> <li>Inadequate infrastructure for some part of cocoa product center areas. Also, there is no infrastructure such as market place where cocoa seed producer can meet buyer in Majene</li> </ul>	<ul style="list-style-type: none"> <li>Farmer's bargaining position in determining selling price of cocoa seed is very low</li> <li>Farmer's lack of capacity in capital</li> <li>Farmer's lack of knowledge concerning good cocoa seed standard, therefore price taken is not a good price</li> <li>The absence of infrastructure to support cocoa seed marketing</li> </ul>	<ul style="list-style-type: none"> <li>There is no economic security mechanism to guarantee farmer's living needs</li> <li>Lack of support from/limited government budget to carry out rehabilitation and construction of roads</li> <li>Lack of farmer's capacity in marketing, and there is no direct access to the market</li> </ul>	<ul style="list-style-type: none"> <li>Open market access for farmers</li> <li>Prioritize infrastructure development to support marketing</li> <li>Meningkatkan kapasitas petani untuk mengolah biji kakao yang sesuai dengan standar yang diinginkan oleh perusahaan</li> <li>Increase farmer's capacity in processing cocoa seeds following the standard of quality desired by enterprise</li> </ul>	---

## Appendix 2. Analysis Stakeholders Matrix on Cocoa Development in Majene Regency

PARTIES INVOLVED CURRENTLY	PRESENT ROLE	EXPECTED ROLE
Ministry of Agriculture RI		
1. Directorate General of Estate	<ul style="list-style-type: none"> <li>• Carry out GERNAS Program</li> <li>• Channeling assistance programs sourced from APBN budget</li> </ul>	<ul style="list-style-type: none"> <li>• Keep undertaking GERNAS Program for Cocoa, considering great benefits obtained from the program for cocoa product increase in Majene</li> </ul>
2. Directorate General of Means and Infrastructure	---	<ul style="list-style-type: none"> <li>• Provision of supporting infrastructure</li> </ul>
Local Agency of Estate, West Sulawesi Province	To support and to coordinate GERNAS Pro-Cocoa Programs, such as provision and channeling of rejuvenation activity (SE seedlings, fertilizer, insecticide, fungicide), rehabilitation (fertilizer, insecticide, fungicide), and intensification (fertilizer, insecticide, and feromon).	Increasing coordination and synchronization of cocoa development programs with Regency Local Government, in particular in provision of goods and services, related with GERNAS activity.
Agency of Forestry and Plantation of Majene Regency	<ul style="list-style-type: none"> <li>• To support GERNAS Pro-Cocoa Program, such as provision and channeling of rejuvenation activity (catch crop, handsprayer, entress (SS), wage), intensification (handsprayer, shears, wage) and post-harvesting processing (UFBK) and provision of funds for field technical staff.</li> <li>• To conduct cocoa product promotion to attract investors (not yet optimal)</li> <li>• Has not yet opened market access for the farmers. Or at least facilitates chocolate factory to meet cocoa farmers and makes cooperation.</li> <li>• To establish UPH as an embryo institution for farmers aimed to increase cocoa seed price »» presently its performance is not optimal.</li> <li>• Has not yet conducted facilitation for all the stakeholders to discuss cocoa problems</li> <li>• Has not yet made a cooperation with bank in provision of capital credit for farmers</li> <li>• Has not yet issued a local regulation on arrangement of cocoa business or investment in cocoa sector</li> <li>• Has not yet conducted nurturing of the Joined Farmer Group. Currently, the Joined Farmer Group already exists but its role and performance in cocoa business is not obvious; instead, there are farmer groups which are active.</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct nurturing programs for farmers more intensively</li> <li>• Make a local regulation on plantation in particular on cocoa with arrangement character (cocoa standard of quality)</li> <li>• Conduct promotion or open marketing access more intensively</li> <li>• Capacity building of UPH and farmers continually so that cocoa seed standard of quality as desired by factory/enterprise can be met</li> <li>• Conduct cooperation with banks in provision of credit for cocoa farmers</li> <li>• Provide infrastructure with good condition from production center to the main roads</li> <li>• Assist farmers in the process of cocoa seed certification (minimal to meet Indonesian National Standard/SNI)</li> <li>• Develop a forum of cocoa stakeholders, aimed to discuss problems occurred in cocoa business in Majene and to suit with the needs of each other.</li> </ul>

PARTIES INVOLVED CURRENTLY	PRESENT ROLE	EXPECTED ROLE
Agency of Forestry and Plantation of Majene Regency	<ul style="list-style-type: none"> <li>• Agricultural extension workers (PPL) have not been supplied with special guidance, whereas in fact PPL has very important role in nurturing farmers. Such special guidance is concerning cocoa plantation techniques, since capability of most agricultural extension workers is just on food crop farming techniques.</li> <li>• Has not yet initiated partnership within stakeholders, for example between farmers with enterprise and bank. Whereas, if it is done, it will be very beneficial in helping farmers with capital, wherein by having a partnership between enterprise with farmers then enterprise will become the farmer's guardian that can help guaranteeing farmers to get credit.</li> </ul>	
Agency for Food Security and Agricultural Extension Services of Majene Regency (BKP4)	<ul style="list-style-type: none"> <li>• Support GERNAS Pro-Cocoa through provision of agricultural extension workers (PPL)</li> <li>• Conduct training and nurturing of farmers, by door-to-door method and by having farmers' gathering at a certain place as well</li> <li>• Assign nurturing on a coverage area of more than one village per person due to insufficient number of agricultural extension workers</li> <li>• Various educational background therefore there are some agricultural extension workers that do not have capacity in cocoa cultivation techniques</li> </ul>	<ul style="list-style-type: none"> <li>• An increase in number of agricultural extension workers so that assignment of one person for one village can be fulfilled</li> </ul>
Farmers	<ul style="list-style-type: none"> <li>• Carry out cocoa cultivation activities including taking care of the plantation, periodic harvesting and fertilizing</li> <li>• Participate in training activities conducted by agricultural extension workers and practicing those that have been learnt (not yet maximal)</li> <li>• Most farmers still conduct processing of cocoa seeds by drying up in the sun; only few apply fermentation process</li> <li>• Sell cocoa seeds to collective traders at the village, sub regency, and regency levels</li> <li>• There has no sign of initiative to develop a strong institution</li> <li>• Has no knowledge of cocoa matters other than cultivation, such as good processing, cocoa seed standard of quality desired by enterprise, and price formulation process as well.</li> <li>• Has no sufficient knowledge regarding process of credit.</li> </ul>	<ul style="list-style-type: none"> <li>• Take care of cocoa plantation intensively so that its product and quality of cocoa seeds will be increasing</li> <li>• Pay more attention, and apply all the recommendations given by the agricultural extension workers to them when agricultural extension services, nurturing, and training are conducted</li> <li>• Carry out good post harvesting process such as drying up »» standard 7, fermentation, and sorting of cocoa seeds</li> <li>• Be active in the farmer group</li> <li>• Certification of cocoa product</li> </ul>



PARTIES INVOLVED CURRENTLY	PRESENT ROLE	EXPECTED ROLE
Farmer Group/Joined Farmer Group	<ul style="list-style-type: none"> <li>Nurturing members of the group</li> <li>Facilitate members in provision of production input</li> <li>Provide assistance to farmers by lending production input to the farmers, and also storage place</li> </ul>	<ul style="list-style-type: none"> <li>Has been one of the institutions able to strengthen farmer's role in the market by collecting together all the farmer product so that it can meet the quota of cacao seeds asked for by the factory</li> </ul>
Village Collective Trader	<ul style="list-style-type: none"> <li>Buy wet or half-dried cocoa seeds directly from farmers at their houses</li> <li>Dry up cocoa seeds for about 3-4 days</li> <li>Sell cocoa seeds to collective traders at the Sub Regency</li> </ul>	---
Product Processing Unit (UPH)	<ul style="list-style-type: none"> <li>UPH assistance package funds from GERNAS Program is used for capital to provide farming tools and basic daily needs that will be sold to farmers on credit</li> <li>Do fermentation process as well as drying in the sun of cocoa seeds</li> <li>Sell dry cocoa seeds to collective traders at the Sub Regency</li> <li>Best practice: Give a label of "UPH" for cocoa seeds that are sold through UPH »» UPH Malunda</li> </ul>	<ul style="list-style-type: none"> <li>Do more efforts to motivate farmers in their farmer group and also farmers of other groups to dry or sell their cocoa seeds at UPH</li> <li>Better UPH management, for example better marketing system as well as better provision of increasing farmer needs</li> <li>As one of such organizations to strengthen bargaining position of farmers in the market</li> </ul>
Sub Regency Collective Trader	<ul style="list-style-type: none"> <li>Buy cocoa seeds from village collective traders or from farmers</li> <li>Dry cocoa seeds according to the requirements of collective traders at the Regency</li> <li>Bring cocoa seeds from the Sub Regency to the wholesaler</li> <li>Occasionally use contract system with the wholesaler. Such contract containing volume sent with certain price, and usually unwritten contract valid only for the maximum of 5 days.</li> </ul>	---
Regency Collective Trader	<ul style="list-style-type: none"> <li>Collect dry cocoa seeds from collective traders, not directly from the farmers</li> <li>Buy cocoa seeds from collective traders with such price following the current price at New York market (the world's cocoa market)</li> <li>Trading cocoa with collective trader depends on the collective trader itself; some make contract agreement, others do not</li> <li>Sell dry cocoa seeds (water content 8 or 9) to the factories, PT General Food, PT Bumi Tangerang, PT Tetrapak based on such contract containing volume of cocoa seeds for certain duration (for example 1 year)</li> </ul>	---

PARTIES INVOLVED CURRENTLY	PRESENT ROLE	EXPECTED ROLE
Factory	<ul style="list-style-type: none"> <li>• There has been no factory that directly connected to the farmers</li> </ul>	<ul style="list-style-type: none"> <li>• Have cooperation with the local government and bank to buy cocoa product from farmers</li> </ul>
Bank	<ul style="list-style-type: none"> <li>• As credit provider and revitalization fund channel, however, currently the credit channeling is not significant; this is because farmers are usually not included in the category of bankable or eligible to get a credit</li> <li>• Has not been playing an active role in increasing farmer's capacity on proposing credit</li> </ul>	<ul style="list-style-type: none"> <li>• Provide access to capital to cocoa farmers with an ease in credit facility</li> <li>• Have cooperation with the local government and factory in order to guarantee factory to buy product from cocoa farmers</li> </ul>
NGO/Cocoa Interest Group	<ul style="list-style-type: none"> <li>• Active role in assisting farmers is still inadequate</li> </ul>	<ul style="list-style-type: none"> <li>• NGO is expected to assist farmers, in particular in advocacy and institutional strengthening and capacity building of farmers</li> </ul>
University	<ul style="list-style-type: none"> <li>• The university's role in supporting cocoa development in Majene by conducting research and development has not yet been optimal.</li> </ul>	<ul style="list-style-type: none"> <li>• Have cooperation with the Local Government to undertake research on characteristics of cocoa plantation in Majene both at coastal as well as at hilly areas.</li> </ul>





## **RESEARCH REPORT**

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# **National Movement of Cocoa Production and Quality improvement (GERNAS KAKAO)**

**IN COOPERATION:**

**FORD FOUNDATION**

and

**Regional Autonomy Watch**

**Jakarta 2013**

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## I. BACKGROUND

Indonesia is the second largest cocoa producer in the world with a total production of 844,626 tonnes in 2010 (if compared to the Ivory Coast, the largest producer, which in 2010 recorded cocoa production of 1,242,290 tonnes, FAO, 2010). With total plantation area covering 1,652 million ha in 2010, which increased to 1,746 ha in 2011, in terms of ownership most land area (94%) belonged to the people (smallholders) that absorbed as much as 1.64 million workers with an export value of more than US\$ 1.6 billion per year, so that cocoa is one of the most strategic commodities for Indonesia.

Cocoa center regions are scattered across Sulawesi (63.8%), Sumatra (16.3%), Maluku and Papua (7.1%), Java (5.3%), East Nusa Tenggara, West Nusa Tenggara and Bali (4.0%). Given that most of the cocoa centers are located in Eastern Indonesia, particularly in mainland Sulawesi, the central government has considered it important to support efforts committed to improving the welfare of the farmers and the cocoa-based economy in eastern Indonesia.

Nevertheless, the huge potential of cocoa in Indonesia is increasingly threatened by pest and disease attacks, old cocoa trees and lack of maintenance of cocoa farms. Based on field identification and the 2008 data from the Ministry of Agriculture, there were 70,000 ha plantations with old cocoa trees, damaged, unproductive, and exposed to pest and disease attacks at severe rate of attack condition that need rejuvenation, 235,000 ha plantations with cocoa trees that are less productive and exposed to pest and disease attacks at moderate rate of attack condition that need rehabilitation, and 145,000 ha plantations with neglected cocoa trees and lack of maintenance that need intensification. These conditions may potentially reduce cocoa productivity, production, and product quality, resulting in a drop in exports and welfare of cocoa farmers. Data from the Directorate General of Plantation, Ministry of Agriculture stated that during 2004-2008 cocoa crop productivity decreased quite dramatically, as much as 40% from 1,100 kg / ha / year to 660 kg / ha / year. This resulted in loss of cocoa production by 184,500 tonnes/year or equivalent to Rp.3.69 trillion per year. Pest and disease attacks also increasingly degraded the quality of cocoa so that cocoa beans exports to the United States of America experienced a price cut of US\$ 301.5/tonne.

To overcome the degradation of performance, the Government in 2008 launched the National Movement for Cocoa Production and Quality Improvement (Cocoa Gernas). The program was initially launched by Vice President Jusuf Kalla at the time, to four provinces in Sulawesi, namely South Sulawesi, West

Sulawesi, Central Sulawesi and Southeast Sulawesi. This is because 60% of cocoa production is in the four provinces. This movement is an effort to accelerate the increase in crop productivity and quality of the national cocoa in an optimal manner involving all potential stakeholders and available resources. The goal is to improve the income level of farmers through increased production, productivity and quality of cocoa.

The implementation of the Gernas cocoa program started in 2009 to end in 2013. In 2009 Gernas cocoa was implemented in 9 provinces (South Sulawesi, Southeast Sulawesi, West Sulawesi, Central Sulawesi, Bali, East Nusa Tenggara, Maluku, Papua and West Papua) and 40 regencies. While in 2010 this program was implemented in 13 provinces (South Sulawesi, Southeast Sulawesi, West Sulawesi, Central Sulawesi, Bali, East Nusa Tenggara, Maluku, Papua and West Papua, West Kalimantan, East Kalimantan, Gorontalo and North Maluku) and 56 regencies. The four new provinces (West Kalimantan, East Kalimantan, Gorontalo and North Maluku) are cocoa centers in eastern Indonesia that currently are also attacked by pests and diseases. In 2011 the implementation of the Gernas cocoa program covered 25 provinces and 98 regencies while in 2012 it was only implemented in 14 provinces and 50 regencies as cocoa centers in Eastern Indonesia.

As a national movement, the government considered it necessary to conduct an evaluation to identify the relevance, effectiveness, efficiency of Gernas Cocoa in achieving outputs and impacts that has been established, namely to increase productivity, quality, and farmers' income. Evaluation also serves as the cornerstone of the feasibility of a program or project to be resumed. Evaluation included inputs, processes, outputs and impacts of the program.

Gernas Cocoa is an effort to accelerate the increase in crop productivity and quality of cocoa at a national scale through the empowerment of all potential stakeholders and existing resources. The goal of Gernas cocoa is to improve the income level of farmers through increased crop production, productivity, and quality. Gernas cocoa targets for 2009-2011 are as follows:

1. Restoration of 450 thousand ha crop area, rejuvenation of 70 thousand ha crop area, rehabilitation of 235 thousand ha crop area using the side-grafting technology, and intensification of 145 thousand ha crop area through the application of appropriate standard cultivation techniques.
2. Empowerment of farmers through training and

- mentoring to 450 thousand farmers.
3. Control of crop pests and diseases covering an area of 450 thousand ha.
  4. Improved quality of cocoa in accordance with SNI

To achieve these targets, the Gernas program has carried out several primary and support activities, namely rejuvenation, rehabilitation and intensification as well as capacity building of farmers. To support the success of major activities through the Gernas program, several support activities have been performed, such as procurement of facilities and infrastructure, coordination, mentoring, evaluation and the preparation of a final report.

The year 2013 is the last year of the Gernas program. Fund support for Gernas cocoa for 2013 is less than previous years to only 28,000 ha of cocoa plantations spread across the provinces of West Sulawesi, South Sulawesi, Southeast Sulawesi and East Nusa Tenggara with a budget of just Rp.250 billion. Fund support is much reduced compared to 2011 and the preceding years, which reached Rp.1 trillion. As a result, there are quite a lot of farmers in other regions who did not get help from the Gernas program, although judging from conditions, their cocoa farms needed urgent help from the program. Given the decreased funding from the state budget this year, additional funding is very much needed from related parties such as the local government, private sector, NGOs and banks.

The shift in commitment and focus of the Ministry of Agriculture to achieve sugar self-sufficiency is one of the causes of the termination of the Gernas program in 2013. In accordance with the "Integrity Pact" between the Ministry of Agriculture and the President, state budget funds have been diverted to the sugar self-sufficiency program. Although not in the form of Gernas next year, central government's support related to cocoa development program will be continued but in a smaller scope and with less budget.

Although 30% cocoa plantations have been touched by the Gernas program, this is not enough reason for the government to continue the program, because 70% of total cocoa plantations in Indonesia which cover 1.6 million ha have not been included in the program despite their poor condition. Yet in recent years, the domestic cocoa industry has been growing rapidly as a result of the imposition of cocoa export duty. Along with increased domestic cocoa industry, demand for cocoa beans has increased rapidly. The end of the Gernas program this year is certainly a cause for concern for the domestic cocoa industry. They are worried that in the future cocoa production in Indonesia will not be able to meet the needs of the domestic industry. If this condition occurs, Indonesia may become a net importer of cocoa beans. Therefore, by the end of the Gernas program it is expected that the provincial government and related local governments will continue what has been designed in the program.

## II. GERNAS COCOA FROM THE PERCEPTION OF NATIONAL STAKEHOLDERS

Focus group discussions and in-depth interviews with several national stakeholders indicate that Gernas is a useful program for the sustainability of the cocoa business in Indonesia and is very useful for all businesses involved with cocoa. The program also supports the ideals of Indonesia to become the world's largest cocoa producer. Gernas is a government policy to restore and rejuvenate cocoa plantations in Indonesia which mostly are old and damaged through rehabilitation, rejuvenation, and intensification activities.

Cocoa crop productivity as an indicator of the success of Gernas has already started to increase although not yet significant. If the plantations have undergone

**Table 1. National Key Informant's Perspectives Regarding GERNAS Cocoa**

RESOURCE PERSON	PERSPECTIVES OF GERNAS COCOA
<b>GERNAS Secretary, Ministry of Agriculture<sup>1)</sup></b>	<i>"Despite the success of the Gernas program requires quite a long time, namely 1.5 years for rehabilitation and 3 years for rejuvenation activities, but there has been increased productivity of the farms belonging to Gernas participants. In accordance with the results of an evaluation conducted by Bappenas, prior to the Gernas program, cocoa productivity in Indonesia averaged only 400-500 kg / ha / year. After the Gernas program the productivity of cocoa farms due to intensification and rejuvenation activities has reached 1.1 tonnes / ha / year. In fact, a significant increase also occurred with cocoa farms being rehabilitated. Rehabilitation results have demonstrated cocoa productivity of 1.5 tonnes / ha / year. This does not rule out the possibility that within the next three years cocoa productivity can increase further."</i>

1) Delivered in an in-depth interview with Heri Moerdianto (Gernas Secretary, Ministry of Agriculture), Friday, 12 April 2013.

<p>Director of PT. Bumi Tangerang<sup>2)</sup></p>	<p><i>“Gernas is a policy of great benefit to all businesses involved in the cocoa business value chain, ranging from farmers, traders, and industries. In a period of 1.5 years, the application of side-grafting technique of the program has succeeded in increasing the quality and quantity of cocoa production in Indonesia. While the results of rejuvenation activities using SE seedlings can be seen only after a period of 3 years. Although the Gernas program only covered 30% of total cocoa plantations in Indonesia, but its success helped to retain cocoa production in 2012 so that there was not a significant decrease during the year.”</i></p>
<p>Ministry of Trade<sup>3)</sup></p>	<p><i>“Gernas is a policy to revitalize cocoa plantations. More than 95% are farms belonging to the people and a large majority is subsistence farmers. This condition would cause them (cocoa farmers) to always feel constrained in terms of on farm cocoa cultivation. Although currently increase in cocoa productivity has not been significant, Gernas is believed to be able to encourage a significant increase in cocoa productivity through the use of quality seedlings, side-grafting and specially formulated fertilizers. In addition, Gernas is also providing training and empowerment facilities to farmers. These all have greatly helped the farmers in increasing their knowledge and institutional capacity.”</i></p>

well cared for intensification, rehabilitation and rejuvenation activities, a significant increase in productivity will be felt in the coming years

Entrepreneurs have also agreed that the Gernas program is very helpful to the cocoa industry. Moreover, the imposition of export duty on domestic raw cocoa has resulted in rapid growth of the industry. Even until now, several cocoa industries such as PT. BumiTangerang set up buyer stations in several cocoa production center regions. With this program, cocoa production volume as raw material for the domestic industry increased. Not only that, cocoa seedlings and clones using specially formulated fertilizers are capable of producing better quality of cocoa beans.

### III. PROFILE OF GERNAS IMPLEMENTATION IN MAJENE

The implementation of the program on National Movement for Cocoa Production and Quality Improvement (Gernas Pro Cocoa) in Majene began in 2009 until 2013. Of the 12,412 ha cocoa plantation area in Majene in 2012, as many as 12,130 ha have been included in the 2009-2012 Gernas cocoa program of which the development every year is as follows: 4,500 ha in 2009, 1,400 ha in 2010, 4,500 ha in 2011 and 1,730 ha in 2012. The data shows that there are still 282 ha of cocoa plantations untouched by the Gernas program.

Of the three main activities, rehabilitation has become the major Gernas program activity in Majene. This is because most cocoa plantations in Majene are less than 15 years old and side-grafting is technically suitable. In terms of location, the program is spread across five sub-regencys in Majene cocoa production centers,

namely the sub-regencys of Sendana, Tammerodo Sendana, Tubo Sendana, Ulumanda and Malunda. Mean while the three other sub-regencys received a smaller portion. In detail, cocoa plantation area development in Majene per sub-regency from 2009 up to 2012 is shown in Table 2 next page.

The program has three main groups of activities: intensification, rehabilitation and rejuvenation.

#### 3.1. INTENSIFICATION ACTIVITIES

Intensification activities are carried out on slightly damaged or badly maintained cocoa trees through improved cultivation techniques and the use of inputs. The provision of fertilizers, pesticides, labor wages assistance, and agricultural tools are the major components.

Table 3 next page shows that intensification activities of Gernas Cocoa in 2011 were spread across five cocoa production centers inMajene, namely in the sub-regencys ofSendana, TammerodoSendana, TuboSendana, Ulumanda and Malunda. Meanwhile the other three sub-regencys received a smaller portion.

Based on Gernas Cocoa Regional Technical Guidelines for 2009-2011 issued by the Directorate General of Plantation, the following are the requirements of farm intensification, among others:

- a) Cocoa trees are still young (< 10 years) but poorly maintained;
- b) Number of stands/tree population >70% of the standard number (1,000 trees/ha);
- c) Crop productivity is low(<500 kg/hektar/year) but still possible to be improved;
- d) Number of shade trees > 20% of the standard;

2) Delivered in an in-depth interview with Sindra Gautama (Director of PT.BumiTangerang), Monday, 8 April 2013.

3) Delivered in an in-depth interview with Wijayanto(Section Head of Seasonal Crop Exports, Directorate General of Foreign Trade, theMinistry of Trade), Thursday, 4 April 2013



**Table 2. Cocoa Plantation Land Area in Majene Associated with Gernas Program 2009-2012 (ha)**

SUB-REGENCY	2009			2010			2011			2012		
	P	R	I	P	R	I	P	R	I	P	R	I
Banggae	8	1,76	0,66	2	-	-	49,25	-	0,80	15	-	-
Banggae Timur	20,4	28,88	38,84	10	-	5	114	-	50,70	20	-	300
Pamboang	36,25	39,98	6,17	13	-	5	100	-	10	28	-	-
Sendana	55,02	220,82	79,25	78	70	71	80	155	400	19,50	-	143
Tammerodo Sendana	114,54	766,11	380,73	80	173	50	77	171	397,50	10,50	33	300
Tube Sendana	88,98	845,48	114,38	75	144	32	82,59	71	254	-	20	202
Ulumanda	80	674,1	110	12	68	41	97,16	481,75	405	71	70	275
Malunda	146,81	922,92	269,97	130	245	96	200	721,25	582	36	277	180
<b>Total</b>	<b>500</b>	<b>3000</b>	<b>1000</b>	<b>400</b>	<b>700</b>	<b>300</b>	<b>800</b>	<b>1600</b>	<b>2100</b>	<b>200</b>	<b>400</b>	<b>1130</b>

Source: Department of Forestry and Plantation, Majene 2013

Information: P = Rejuvenation  
R = Rehabilitation  
I = Intensification

**Table 3. Cocoa Development Regions Associated with Intensification Activities of The GERNAS Cocoa Program in Majene Regency in 2011**

No	SUB-REGENCY	Area (Hectare)	Fertilizers (kg)	Inputs (ltr)	Labor Wages (Rp)	Hand Sprayer (Piece)	Giant Scissor (Piece)
1	Banggae	0,80	256,00	0,64	600.000	-	-
2	Banggae Timur	34,70	11.104,00	27,76	26.025.000	7	36
3	Pamboang	10,00	3,200,00	8,00	7.500.000	2	10
4	Sendana	250,00	80.000,00	200,00	187.500.000	50	250
5	Tammerodo Sendana	247,50	79.200,00	198,00	185.625.000	50	248
6	Tube Sendana	167,00	53.440,00	133,60	125.250.000	33	167
7	Ulumanda	300,00	96.000,00	240,00	225.000.000	60	96
8	Malunda	390,00	124.800,00	312,00	292.500.000	78	390
<b>Total</b>		<b>1.400,00</b>	<b>448.000,00</b>	<b>1.120,00</b>	<b>1.050.000.000</b>	<b>280</b>	<b>1400</b>

Source: Department of Forestry and Plantation, Majene, 2012

- e) Attacked by major pests and diseases (PBK and Helopeltis spp pests, VSD and Rotten Fruit diseases).
- f) Qualified land suitability, including: 1,500-2,500 mm of rainfall (very appropriate) and 1,250-1,500 mm or 2,500-3,000 mm rainfall (appropriate), 0-8% slopes (very appropriate) and 8-15% slopes (appropriate)

### 3.2. REHABILITATION ACTIVITIES

Rehabilitation activities are intended for productive plants with moderate damaged condition and side-grafting technique through the use of superior clones. The main components of this program are provision of inputs, fertilizers, pesticides, labor wages assistance, and small farming tools.

Table 4 beside shows that the regions of rehabilitation

activities are concentrated across five regencies of cocoa production centers, particularly in the sub-regency of Malunda in which 40% of farms are subject to rehabilitation activities. While the sub-districts of Banggae, Banggae Timur and Pamboang are not rehabilitation activity centers.

In the Gernas Cocoa Regional Technical Guidelines for 2009-2011 issued by the Directorate General of Plantation, Ministry of Agriculture is stated that the requirements for farms to be rehabilitated are expanded farms with the following conditions:

- a) Productive age cocoa trees (age <15 years) and technically possible for side-grafting;
- b) Number of stands/tree population 70%-90% of the standard number (1,000 trees/ha);
- c) Crop productivity is low (<500 kg/hektar/tahun) but still possible to be improved;
- d) Number of shade trees > 70% of the standard;

**Table 4. Cocoa Development Regions Associated with Rehabilitation Activities of the GERNAS Cocoa Program in Majene Regency in 2011**

No	SUB-REGENCY	Area (Hectare)	Inputs (Stem)	Fertilizers (Kg)	Scorpion (Ltr)	Labor Wages (Rp)	Hand Sprayer (Piece)
1	Banggae	-	-	-	-	-	-
2	Banggae Timur	-	-	-	-	-	-
3	Pamboang	-	-	-	-	-	-
4	Sendana	140,00	280.000	26.600,00	42,00	105.000.000,00	28
5	Tammerodo Sendana	112,00	224.000	21.280,00	33,60	84.000.000,00	23
6	Tubo Sendana	45,00	90.000	8.550,00	13,50	33.750.000,00	9
7	Ulumanda	181,75	363.500	34.533,00	54,53	136.312.500,00	36
8	Malunda	321,25	642.500	61.037,00	96,38	240.937.500,00	64
<b>Total</b>		<b>800,00</b>	<b>1.600.000</b>	<b>152.000,00</b>	<b>240,00</b>	<b>600.000.000,00</b>	<b>160</b>

Source: Department of Forestry and Plantation, 2012

- e) Attacked by major pests and diseases (PBK and *Helopeltis* spp pests, and Rotten Fruit disease);  
 f) Qualified land suitability, including: 1,500-2,500 mm of rainfall (very appropriate) and 1,250-1,500 mm or 2,500-3,000 mm rainfall (appropriate), 0-8% slopes (very appropriate) and 8-15% slopes (appropriate).

### 3.3. REJUVENATION ACTIVITIES

Rejuvenation activities are directed towards old or badly damaged trees by replacing the trees, reinforcement and strengthening tree population using superior seed clones developed with the somatic embryogenesis (SE) technique. The main components of these activities include provision of seeds, fertilizers, pesticides, labor wages assistance, and small farm tools.

Table 5 shows that Malunda sub-regency is the region that carried out most intensive rejuvenation activities

in accordance with the Gernas program in 2011. While the sub-regencies of Banggae, Tammerodo Sendana and Tubo Sendana are the least regions to carry out rejuvenation activities, considering the young age of cocoa trees in these regions.

The requirements for Cocoa farms to be rejuvenated according to Gernas Cocoa 2009-2011 Regional Technical Guidelines issued by Directorate General of Plantation, Ministry of Agriculture Plantation are farms with the following conditions:

- a) Old cocoa trees (age > 25 year);  
 b) Number of stands/tree population < 50% of the standard number (1,000 trees/ha);  
 c) Crop productivity is low (< 500 kg/ha/year);  
 d) Attacked by major pests and diseases (PBK and *Helopeltis* spp pests, VSD and Rotten Fruit diseases);  
 e) Qualified land suitability, including: 1,500-2,500 mm of rainfall (very appropriate) and 1,250-1,500

**Table 5. Cocoa Development Regions Associated with Rejuvenation Activities of the GERNAS Cocoa Program in Majene Regency in 2011**

No	SUB-REGENCY	Area (ha)	SE Seedlings (stem)	Fertilizers (kg)	Figor (litre)	Scorpion (liter)	Labor Wages (Rp)	Hand Sprayer (Piece)	Intercrop Seeds (kg)
1	Banggae	49,25	49.250	1.970	24,6	9,85	36.937.500	10	739
2	Banggae Timur	114	114.000	4.560	57	22,8	85.500.000	23	1.710
3	Pamboang	100	100.000	4.000	50	20	75.000.000	20	1.500
4	Sendana	80	80.000	3.200	40	16	60.000.000	16	1.200
5	Tammerodo Sendana	77	77.000	3.080	38,5	15,4	57.750.000	15	1.155
6	Tubo Sendana	82,59	82.590	3.304	41,3	16,52	61.942.500	17	1.239
7	Ulumanda	97,16	97.160	3.886	48,58	19,43	72.870.000	19	1.457
8	Malunda	200	200.000	8.000	100	40	150.000.000	40	3.000
<b>Jumlah</b>		<b>800</b>	<b>800.000</b>	<b>32.000</b>	<b>400</b>	<b>160</b>	<b>600.000.000</b>	<b>160</b>	<b>12.000</b>

Source: Department of Forestry and Plantation, Majene, 2012

mm or 2,500-3,000 mm rainfall (appropriate), 0-8% slopes (very appropriate) and 8-15% slopes (appropriate).

In all three main activities, there are several mentoring packages provided in the form of:

#### **a) Non-Subsidized Compound Fertilizers.**

Fertilizers provided are non-subsidized compound fertilizers in the form of tablets or briquettes. The type and dosage of fertilizers used referred to the recommendations of the Cocoa Research Center in Jember so that the fertilizers provided are fertilizers that are appropriate to the type and quality of the soil in Majene. Fertilizer procurement is carried out by the Department of Plantation of West Sulawesi province.

For intensification activities, Majene Regency in 2011 obtained an allocation of 672,000 kg or 320 kg/ha which was applied at the beginning of the rainy season and distributed to farmer groups for implementation of intensification activities. In addition, Majene Regency also obtained an allocation of 304,000 kg with a dose of 190 kg/ha for rehabilitation activities and 32,000 kg with a dose of 40 kg/ha. Intensification activities received the highest dose of fertilizers compared to other activities because the activities required more intensive fertilization.

With the help of specially formulated fertilizers, farmers did not have to spend money in terms of fertilization, especially intensification activities. This is very beneficial to farmers, given that specially formulated fertilizers are suitable with the soil conditions in Majene so that optimal results can be expected.

However, there are some obstacles in terms of subsidized fertilizers, first there is no continuity of specially formulated fertilizers. Future constraints that may arise include farmers' difficulty to buy non-subsidized compound fertilizers given that specially formulated fertilizers are not sold and bought freely in the market. Factories that won the tender to manufacture these fertilizers must first obtain official permission from the Ministry of Agriculture.

Second, delay in distribution of fertilizers as a result of the disparities and lack of coordination between the regency government and the provincial government. As stated in the Gernas technical guidelines, fertilizer procurement is undertaken by the Provincial Department of Plantation, while in general the program is implemented at the regency level. However, the reality on the ground is that good coordination has rarely been done. As a result, by the time of program implementation of rehabilitation, intensification and rejuvenation, fertilizers assistance has not been obtained. In the end, this may hamper the implementation schedule of the Gernas program.

*Third is coverage area of fertilizers distribution. According to one of the resource persons of a focus group discussion in Majene.*

*"The difference in transportation costs to reach the coastal area and the plateau region in Majene is an obstacle to the distribution of fertilizers. Transportation costs for distribution to plateau regions are much higher than to coastal areas but the amount of costs is considered the same. As a result, distribution of fertilizers to plateau regions is less than the maximum. For example, 1 tonne of fertilizers to be distributed to the plateau region is only distributed 800 kg. The difference of 200 kg is used to reimburse transportation costs to reach the region concerned."*

#### **b) Procurement of Equipment**

The types of equipment used in intensification activities are handsprayers and giant scissors. Procurement of handsprayers and giant scissors is done by the Department of Forestry and Plantation.

For intensification, rehabilitation and rejuvenation activities, handsprayer provided is 1 (one) for every five hectares. While 1 (one) giant scissor is provided for each hectare of cocoa land area. This equipment assistance helps farmers in taking care of their cocoa farms. Handsprayers are used by farmers to spray pesticides and giant scissors are used to trim the stems/branches of cocoa trees in accordance with technical cultivation standards. The provision of free equipment can save farm costs, thus increasing farmer profits.

Unfortunately, the benefits of such technical assistance could not be obtained by all farmers considering the disproportionate number of support equipment assistance. One handsprayer is given to each farm of 5 hectares. This means that each farmer group with 25 members only gets 6 handsprayers. Handsprayers not proportionate to the number of farmers (6 handsprayers for 25 farmers) can cause complications to farmers. In fact, this can lead to jealousy because of the assumption of farmer group members that only the group leader or farmer group manager is entitled to such equipment assistance. Meanwhile, the less active farmer group members are not given a chance to use the equipment.

Likewise giant scissors are very useful for pruning cocoa trees. The number of giant scissors given is just 1 piece for each 1 ha of cocoa farm. If each farmer only has 0.5 ha of farm, this can lead to jealousy as a single giant scissors is used by 2 farmers.

#### **c) Pesticides**

Pesticide types used are those that are effective, efficient, already registered and have a permit from

the Minister of Agriculture with the recommended dose, and that their selection is based on the observation of pests and diseases. Procurement of pesticides is carried by the Department of Plantation of West Sulawesi Province.

In terms of intensification activities, Majene Regency in 2011 obtained an allocation of 1,680 liters. Pesticides received from the province were 'Matarin' brand pesticides with a dose of 0.80 liters/hectare. Meanwhile, in connection with rehabilitation activities Majene Regency has received an allocation of 480 liters Scorpion' pesticides at a dose of 0.30 liters/ha. For intensification activities Majene Regency also received an allocation of pesticides as much as 560 liters consisted of 400 liters 'Vigor' pesticides at a dose of 0.50 liter per ha and 160 liters 'Scorpion' pesticides at a dose of 0.2 liter per ha.

These pesticides are very useful for farmers to prevent Plant Pest Organism (OPT) attacks. As a result, farms infected with pests decreased by 21 percent (see Table 5). Unfortunately, the provision of chemical pesticides has not been offset by the provision of plant-based fertilizers, given that the continuous use of chemical pesticides may degrade the quality of crops and land.

#### **d) Labor Wages Assistance**

In addition to the physical form of aid, assistance is also provided in the form of labor wages. Labor wages are given to farmers through farmer groups for maintenance (pruning) of cocoa trees amounting to Rp. 750,000 per ha. Labor wages assistance is delivered through farmer group savings accounts according to the stage of work completed by farmers.

Labor wages assistance is an incentive provided by the government so that farmers take good care for their cocoa farms. Without this incentive, farmers tend to be lazy to conduct maintenance. Although in fact proper care and maintenance of farms is one of the keys to success of cocoa farming. Thus, the assistance may increase farmers' intention to take proper care of their farms as well as increase their incomes.

#### **e) Inputs and Side-Grafting**

Inputs are planting materials used for side grafting. Inputs procurement is only done in rehabilitation activities. In 2011, Majene Regency received 3,200,000 side grafting for 1,600 ha, or about 2,000 per ha.

Side grafting is a technique to connect the parts of the tree with a superior clone. Such technique can restore damaged cocoa farms and old cocoa trees without cutting down the whole tree. Because it is derived from clones, the resulting cocoa fruits may become much more with better quality.

#### **f) Seedlings and Trees**

During rejuvenation activities, cocoa trees aged over 25 years are cut down and replaced by SE seedlings from the Cocoa Research Center in Jember, East Java. Hybrid corn seeds as substitution crop or intercrop are then given. Allocation of SE seedlings distributed in 2011 was as many as 800,000 stems/trees at a ratio of 1,000 per tree per ha. While the procurement of hybrid corn seeds as intercrop is done by the Department of Forestry and Plantation of Majene Regency. The hybrid corn seed aid is as much as 12,000 kg with a ratio of 15 kg/ha.

Cocoa seeds are superior seeds propagated by genetic engineering into somatic embryogenesis (SE) seedlings. Thus, the cocoa produced from the seedlings has better quality and greater quantity. This is very helpful to farmers because on average cocoa farms in Majene are of old age and thus require replacement trees. In addition, the provision of intercrop seeds is also very useful because intercrop yield may become income for farmers at the time when new cocoa trees from the SE seedlings have not yet bear fruit.

The provision of subsidized seedlings is not free of constraints in its implementation. A large number of seedlings perished during distribution or augmentation done by the provincial government. Some of the factors that led to the death of seedlings in the form of plantlets are as follows:

1. Delivery process that exceeded the critical time required for seedlings so that they perished during transportation. Seedling plantlets critical period is 5-7 days. Sometimes delivery is hampered due to poor infrastructure and transportation.
2. Packaging of seedling plantlets did not follow the applicable rules/standards. For example, one rack should contain 1,500 plantlets, but in practice seedling plantlets were stacked in racks exceeding the provision (3,000 plantlets) so that the seedlings became damaged and thus perished.
3. Seedlings perished because the assistants assigned were less skilled and seedlings treatment was not in accordance with the Gernas cocoa regional technical guidelines set out by the Ministry of Agriculture.

### **3.4. CAPACITY BUILDING OF FARMERS**

In general, the main problems of cocoa HR are lack of motivation to take proper maintenance of farms, lack of motivation to attend counseling and training, and lack of knowledge about standards of quality and price. Up to now many farmers are still reluctant to take proper care of their cocoa farms. Although in fact farm care is a major requirement for cocoa farming success.

One of the activities in the Gernas program is the

empowerment of farmers. Empowerment of farmers is an attempt to improve the ability and capacity of cocoa farmers in managing their cocoa business. Empowerment is done through socialization, training, and mentoring.

In principle, these activities are very important for the capacity building of farmers. The increased knowledge, skills and expertise of farmers acquired from these activities are useful to be implemented in the farms so that they become serious about taking proper care of farms. This can definitely increase the productivity of cocoa farms. However, the number of empowerment training participants is still very limited. In 2009, there were 253 people from 2,832 farmers. This means only 8.9% farmers have who attended training organized by the government. Even in 2012, the proportion of farmers who received training declined to 2.7% from a total of 12,289 cocoa farmers only 282 farmers participated in the

empowerment training activities (Department of Forestry and Plantation, 2013). Thus, the training program has not been completely effective given that number of trainees is very low, namely below 9% of total cocoa farmers in Majene.

In addition to training activities, field mentoring activities have been carried out to support the success of the Gernas program. Unfortunately, Majene Regency employed about 50 assistants only to help make the Gernas program successful. This number consists of third-party assistants, field officers and field technical team. With a diverse background of the existing assistants, not all of them have enough knowledge about cocoa so that their performance in the Gernas program is not optimal. In terms of background not all extension workers have previous farming experience. Not a few of their educational backgrounds are livestock, forestry and fisheries. Moreover, there are

**Table 6. Impact Chain and Constraints to Aid Package For Gernas Cocoa Intensification, Rehabilitation and Rejuvenation Activities**

ACTIVITY	OUTPUT	USE OF OUTPUT	IMPACT	HIGHLY IMPACT	CONSTRAINT
Procurement of non-subsidized compound fertilizers	<ul style="list-style-type: none"> <li>Fertilizer use according to soil type</li> <li>Reduction of production costs</li> </ul>	Optimizing use of special formula fertilizers	<ul style="list-style-type: none"> <li>Increased cocoa productivity</li> <li>Improved cocoa quality</li> <li>Increased production profit (margin) earned by farmers</li> </ul>	Improved public welfare in Majene	<ul style="list-style-type: none"> <li>No specially formulated fertilizer's sustainability</li> <li>Delays in the distribution of fertilizers</li> <li>Lack of transportation costs in the distribution of fertilizers</li> </ul>
Procurement of equipment (giant scissors and hand-sprayers)	<ul style="list-style-type: none"> <li>More well cared farms</li> <li>Reduction of production costs</li> </ul>	Optimizing use of farm equipment	<ul style="list-style-type: none"> <li>Increased cocoa productivity</li> <li>Improved cocoa quality</li> </ul>		Total equipment aid is disproportionate causing ineffective use of equipment
Procurement of pesticides	<ul style="list-style-type: none"> <li>Pesticide use in accordance with types of pests and diseases</li> <li>Reduction of production costs</li> </ul>	Optimizing use of pesticides	<ul style="list-style-type: none"> <li>Decreased pest and disease attacks</li> <li>Increased cocoa productivity</li> </ul>		Long-term use of pesticides can reduce crop quality
Provision of labor wages assistance	<ul style="list-style-type: none"> <li>Wages of Rp 75,000 per hectare</li> </ul>	---	<ul style="list-style-type: none"> <li>Provide incentives for farmers to take proper care for their farms</li> <li>Increased farmers' income</li> </ul>		---

ACTIVITY	OUTPUT	USE OF OUTPUT	IMPACT	HIGHLY IMPACT	CONSTRAINT
Procurement of inputs	<ul style="list-style-type: none"> <li>Side-grafting technique with clones damaged and old trees</li> </ul>	Optimizing the use of side-grafting technique, application of fertilizers and pesticides	<ul style="list-style-type: none"> <li>Increased cocoa productivity</li> <li>Improved cocoa quality</li> <li>Increased farmers' income</li> </ul>	Improved public welfare in Majene	---
Procurement of seedlings and intercrop	<ul style="list-style-type: none"> <li>Use of quality seedlings</li> </ul>	Optimizing the use of quality seedlings, fertilizers and pesticides	<ul style="list-style-type: none"> <li>Increased cocoa productivity</li> <li>Improved cocoa quality</li> <li>Increased farmers' income</li> </ul>		A large number of seedlings perished during distribution and augmentation done by the provincial government

extension workers who have high school education backgrounds. As a result, they lack understanding of cocoa technical issues.

A side from quality, the number of extension workers is very limited. The reality on the ground is not uncommon for extension workers to handle more than one village. As a result extension workers have not been able to reach all farmers and are forced to make lesser visits to farmers. In addition, several extension workers are on contract basis with the Ministry of Agriculture as part of the Gernas program. This means that by the end of Gernas program their contracts also expires. This will of course reduce the number of extension workers in the field.

### 3.5. FORMATION OF PROCESSING UNITS (UPHs)

In order to improve cocoa quality, one Processing Unit (UPH) is formed every year along with its support facilities. From 2010 to 2012 three UPHs have so far been formed, namely UPH Sangiang in Sendana Sub-regency in 2010, UPH Kanrufi in Tammerodo Sendana Sub-regency in 2011 and UPH Bukit Harapan in Malunda Sub-regency which was formed in 2012. In addition to the construction of buildings, support facilities provided are fermentation boxes, drying machines, water content measuring devices, scales and working capital assistance. Especially in terms of working capital assistance this varies each year. In 2011, it is recorded that working capital assistance provided to the management of UPH s reached Rp. 192,600,000.

The existence of the UPH is intended to help farmers improve the quality of cocoa beans so that they can carry out fermentation and no longer just sell dried cocoa. In addition, during the rainy season, UPH's role

can be optimized because it is equipped with a drying machine. However the drying machine may reduce the taste and aroma of cocoa beans and requires large quantities of wood as fuel. Therefore, this machine is only used in very urgent circumstances such as during the rainy season. Working capital assistance provided to the UPH is also very useful for farmers. From the working capital, farmers can access loans in the form of cash or inputs, such as fertilizers, pesticides and farm tools. Usually they repay the loans after harvest.

UPH's impact on farmers has been perceived helpful, especially in terms of cocoa beans processing. However, the formation of UPHs which until now totaled 3 units in three cocoa center sub-regencys is still felt not enough to accommodate farmers' cocoa production in the three sub-regencys. Moreover, the characteristics of the terrain that is difficult to reach and the wide area of sub-regencys have made it more difficult for farmers to sell their cocoa beans to the UPH. Farmers tend to prefer selling directly to traders who are prepared to visit their home rather than having to walk a long distance to deliver cocoa beans to the UPH.

In addition, the UPH's goal to strengthen farmer institutions has not been fully achieved. Until now, farmers have not felt the presence of the UPH as an institution that can unite them thus improving their bargaining position. The role of the local government is merely to make UPH available. Other efforts have not been there to try to push the processed form of fermented products, such as regulations associated with the fermentation of cocoa beans and efforts to streng then the capacity of the UPH in cocoa bean fermentation in order to receive greater supply of cocoa beans from farmers. This is urgently needed so that the benefits resulting from the formation of UPHs can be optimized.

**Table 7. Impact Chain And Constraints To Farmers' Capacity Building Activities Related to GERNAS Cocoa**

ACTIVITY	OUTPUT	USE OF OUTPUT	IMPACT	HIGHLY IMPACT	CONSTRAINT
<ul style="list-style-type: none"> <li>• Training</li> <li>• Socialization</li> <li>• Mentoring</li> </ul>	<ul style="list-style-type: none"> <li>• Improved knowledge, skills and expertise of farmers</li> </ul>	Better communication between extension workers and farmers	<ul style="list-style-type: none"> <li>• Increased cocoa productivity</li> <li>• Improved cocoa quality</li> <li>• Increased farmers' income</li> </ul>	Improved public welfare in Majene	<ul style="list-style-type: none"> <li>• Limited number of participants</li> <li>• Limited number of assistants</li> <li>• Low quality of assistants</li> </ul>

### 3.6. KEGIATAN LAIN DALAM GERNAS

In addition to the activities described earlier, this program has several activities that support the achievement of Gernas targets. Some of them are:

- **Synchronization and Coordination of Cocoa Revitalization Activities**

These activities are coordination, evaluation and preparation of reports. Coordination activities are carried out to prevent making mistakes in the field. Before preparing a report, an evaluation meeting was carried out on each Gernas activity Gernas to discuss the implementation of field activity and its results. Subsequently a report is made on Gernas cocoa results of the TA. By now, the report that has been completed by Majeneregency government is Gernas Cocoa Evaluation Report in 2011.

- **Maintenance of supporting facilities and infrastructure.**

An assistant is one of the actors that may determine the success of Gernas. Given the extent of Majene region and poor infrastructure, motor vehicles support the activities of assistants very much to reach farmers, especially those in rural areas. Therefore, Gernas is equipped with maintenance activities and supporting infrastructure, one of which is the provision of motorcycle facilities.

- **Escorting, mentoring, synchronization, coordination, monitoring and evaluation of implementation.**

This activity consists of two general categories: escort activities and the development of cocoa data base systems. Escort activities are undertaken to supervise and oversee main activities (intensification, rehabilitation and rejuvenation) conducted by the Department of Forestry and Plantation. Due to its escort activity, Gernas main activities run smoothly without a hitch. The cocoa data base system has not been fully completed. This is due to incomplete data collection.

## IV. GERNAS COCOA PROGRAM ACHIEVEMENTS IN MAJENE REGENCY

During the period 2008-2011, there was considerable improvement in terms of total production, productivity, employment and income of farmers. Total cocoa production increased from 5,717 tonnes in 2008 to 9,024 tonnes in 2011. The largest increase occurred in 2011 to 2,615 tonnes of cocoa. This suggests that significant production increase can be felt starting in 2011. Judging from productivity, the largest increase occurred in 2010 with an increase of

**Table 8. Impact Chain and Constraints Related to The Formation of Processing Units (UPHs)**

ACTIVITY	OUTPUT	USE OF OUTPUT	IMPACT	HIGHLY IMPACT	CONSTRAINT
<ul style="list-style-type: none"> <li>• Construction of buildings</li> <li>• Procurement of support facilities (fermentation boxes, drying machines, etc.)</li> <li>• Working capital assistance</li> </ul>	<ul style="list-style-type: none"> <li>• Containers to accommodate (collect) cocoa beans from farmers</li> <li>• Containers for drying cocoa beans</li> <li>• Provision of production facilities on credit</li> </ul>	Better communication between UPH management and farmers	<ul style="list-style-type: none"> <li>• Improved quality of cocoa beans</li> <li>• Increased selling price of cocoa beans</li> <li>• Breaking the cocoa value chain in Majene</li> <li>• Institutional strengthening and improved bargaining position of cocoa farmers</li> </ul>	Improved public welfare in Majene	<ul style="list-style-type: none"> <li>• UPHs are still limited in number thus not able to accommodate the entire production of the farmers</li> </ul>

157.4 tonnes/ha. In general, during the period 2009-2011 the Gernas program was able to increase cocoa production by 58% and productivity by 55%. Not only that, in addition to increased farmers' income, amounting to Rp 2,716,319, the number of farmers also increased in the period 2008 to 2011. The increase in income became an incentive for farmers to farm cocoa so that the number of farmers also increased. In 2008, there were 7,711 households who participated in the cocoa business, an increased of 33.3% to 10,289 households in 2011.

When viewed from crop quality, pest and disease attacks declined significantly. In 2008, before the implementation of Gernas, as much as 10,177 ha of cocoa plantations were attacked by pests and diseases or by 92% of the total cocoa plantations in Majene. Meanwhile, in 2011 extensively infested plantations dropped to 8,786.20 ha or 71% of total cocoa plantations. In addition, the use of seedlings increased sharply from initially only 7.19% in 2008 to 60.62% in 2011.

In detail, Gernas cocoa achievements in Majene are based on six indicators, namely land area, productivity, production, labor, farmers' income and quality planting as can be seen in Table 9 below.

## V. POLICY RECOMMENDATIONS

### *Improved coordination and synchronization among the Central Government, Provincial Government and Regency Government.*

The delay in distribution of production facilities either fertilizers or seeds may inhibit the success of the Gernas program. Therefore, there is a need for increased coordination and synchronization, especially in terms of Gernas main activities. The Regency Government needs to coordinate the fertilizing implementation schedule with the activities of rejuvenation, rehabilitation and intensification of the provincial government so that there is no delay in the distribution of fertilizers. This is likewise with the distribution of seedlings. Coordination between PuslitkokaJember and the Provincial Government on

cocoa is urgently needed related to the delivery time of seedlings and seedling augmentation procedures by the provincial government.

### *Increased Government Support in strengthening of Field Extension Workers (PPLs).*

With diverse PPL backgrounds, not all PPLs have enough knowledge and expertise on cocoa. As a result, farmers still face many obstacles in farming. Therefore, support is much needed from the local government regarding the quality and quantity of PPLs in Majene. In improving the expertise and skills of farmers, capacity building of PPLs is needed through intensive and periodical training. Not only that, the number of PPLs should be increased so that they are able to reach all farmers. In addition, coordination between technical extension workers with the Agency for Food Security and Agricultural Extension Workers (BKP4) needs to be improved so that all PPLs can be well coordinated.

### *Local government coordination so that farmers are able to access specially formulated fertilizers.*

Specially formulated fertilizers are fertilizers subsidized by Gernas derived from soil and leaves analysis results generated by the Cocoa Research Center (Puslitkoka). Because of the specificity of the formula, these fertilizers are not sold freely on the market. With the end of the Gernas program it is also the end to the fertilizer subsidy given. This indicates that farmers can no longer access the specially formulated fertilizers so that cocoa farm productivity will decrease.

Actually, these specially formulated fertilizers can remain in production at all plants if there is substantial demand from the farmers. Therefore, the role of the local government is much needed to strengthen farmer institutions or farmer groups so that factories are willing to produce them at a certain scale. In this case, the local government through the Department of Plantation can coordinate fertilizer orders to the factory. This solution is acceptable to the Head of Department of Plantation (Kadishutbun) of Majene<sup>4)</sup>. He offered a solution that in the future Department

**Table 9. GERNAS Program Achievements in Majene from 2008 up to 2011**

NO	INDICATOR	UNIT	2008	2009	2010	2011
1	Land Area	Ha	11.094	11.101	11.251	12.412
2	Productivity	Kg/Ha	568	569.6	727	880
3	Production	Tonne	5.717	6.312	6.409	9.024
4	Labor	Household	7.711	8.832	8.832	10.289
5	Farmers' Income	Rp/Year	14.823.811	16.371.003	16.624.978	17.540.130

4) In the Focus Group Discussion on "Business Climate Development for Improved Cocoa Business Value Chain in Majene" held in Majene, 14 February 2013



NO	INDICATOR	UNIT	2008	2009	2010	2011
6	Quality Planting					
	a. Number of Tree Population	Pohon/Ha	1.100	1.000	1.000	1.000
	b. Area of Pest and Disease Attacks	Ha	10.177	9.800	9.120	8.786,20
	c. Use of Superior Seedlings	%	7,19	31,5	41,28	60,62

Sumber: *DinhutbunMajene, 2012*

of Plantation will collaborate with a University to analyze the type of soil and fertilizers suitable with the soil in Majene. As a result, Department of Forestry and Plantation will offer to factories to produce the fertilizers and coordinate farmer groups in purchasing fertilizers.

The success of institutional strengthening of farmers in the purchase of fertilizers has already been proven in Southeast Sulawesi. Through the independent public economic institution (LEMM) and approach to the villages, a cooperative has been established which has the capability to persuade factories to produce specially formulated fertilizers for sale to farmers. This is a good example to be applied in other regions.

#### *Capacity building of farmers by the local government*

As is well known, the majority of cocoa farmers are lacking awareness to properly maintain their cocoa farms. The role of the local government is urgently needed for institutional strengthening of farmers through farmers' training and empowerment. This is still very necessary so that farmers have the awareness and expertise in maintaining their farms properly. Not only that, institutional strengthening is needed so that farmers have the awareness to be actively involved in farmer institutions such as the UPH and farmer groups in order to increase their bargaining position.

The number of participants must also be considered by the local government. If there is only a small number of training participants, the event will not have a significant impact. Therefore, the local government needs to increase the number of training participants. In addition, the local government needs to attract the interest of farmers with special incentives so that farmers are willing to attend the training and apply it on their farms.

#### *Establishment of a stakeholder forum as an institutional improvement effort*

A fundamental problem in this Gernas program is the absence of a cocoa stakeholder forum that brings together all actors with an interest in the cocoa commodity. The absence of this forum has led to

discrepancies between parties in cocoa development efforts. For example, the local government provides funding for revitalization of cocoa farmers at low interest rates. Nevertheless, there are still many cocoa farmers who do not understand the process of borrowing revitalization funds in the absence of socialization by banks and the local government regarding the funds.

With the establishment of this forum, it is expected that all parties associated with cocoa can gather to discuss the problems faced in cocoa development. Moreover, from the forum can be formulated the partnership forms that benefit all stakeholders.

#### *Sustainable implementation of Gernas by the local government*

It is inevitable that Gernas will end this year. Although a different program has been planned to replace Gernas program it is less massive and with a far less budget. Therefore, in the future the provincial government and the regency government should be more committed to continuing the Gernas program in their respective regions. As described by the resource person from the Ministry of Agriculture<sup>5)</sup>, the Gernas program should be a stimulus from the central government so that local governments pay more attention to cocoa as the main commodity in their regions. After the stimulus ended, local governments should be able to continue this Gernas program although in another form, such as the pro cocoa Regional Movement (Gerda).

It is most unfortunate if the Gernas program is not continued by the local government. Cocoa plantation area of 450,000 ha in the whole of Indonesia, particularly 12,130 ha in Majene will be in vain if there is no help from the local government to the farmers to take care of their farms, moreover if cocoa plantations are converted into oil palm plantations. The program of the local government as a continuation of Gernas should focus on improving means of production assistance and empowerment of farmers. With this program, it is expected that farmers can better take care of their farms so that Gernas program results are more optimal and can be felt in the years to come. ■

5) National Focus Group Discussion titled "Business Climate Development for the Improvement of Cocoa Business Value Chain in Majene Regency" held in Jakarta, 25 April 2013

## Appendix I. Matrix of the Role of Gernas Cocoa Stakeholders

PARTIES INVOLVED IN GERNAS	CURRENT ROLE	EXPECTED ROLE
Ministry of Agriculture (Directorate General of Plantation)	<ul style="list-style-type: none"> <li>• Provide budget for the Gernas program</li> <li>• Coordinate implementation of the Gernas program with provincial and regency governments</li> <li>• Provides contract extension workers to help facilitate the Gernas program</li> <li>• Supervise the operations of the Gernas program</li> </ul>	<ul style="list-style-type: none"> <li>• Continuing the program that aims to increase cocoa commodity</li> <li>• Improve coordination and supervision in cocoa commodity development program</li> </ul>
Department of Plantation of West Sulawesi Province	<ul style="list-style-type: none"> <li>• Perform procurement of specially formulated fertilizers</li> <li>• Perform procurement of pesticides</li> <li>• Perform augmentation of SE seedlings</li> <li>• Provide budget of transportation costs for extension workers amounting to Rp.125,000/month/extension worker</li> <li>• Together with Department of Plantation of the Regency perform socialization of the Gernas program</li> </ul>	<ul style="list-style-type: none"> <li>• Continuing the Gernas program in the region for cocoa commodity development program</li> <li>• Provide support of a larger budget for extension workers</li> </ul>
Department of Forestry and Plantation of Majene Regency	<ul style="list-style-type: none"> <li>• Perform procurement of equipment (handsprayers and giant scissors)</li> <li>• Procurement of inputs in cooperation with seed measuring companies</li> <li>• Channel labor wages to farmers</li> <li>• Provide operational budget for extension workers</li> <li>• Conduct socialization and training to extension workers</li> <li>• Together with Department of Plantation of the Province perform socialization of the Gernas program</li> <li>• Perform selection of prospective participating farmers</li> </ul>	<ul style="list-style-type: none"> <li>• Continuing the Gernas program in the region for cocoa commodity development program</li> <li>• Working with BKP4 to increase the number of extension workers</li> <li>• Conduct training programs to farmers intensively with more farmers</li> <li>• Coordinate farmers to be able to access specially formulated fertilizers</li> </ul>
Farmers	<p>a) Perform intensification, rehabilitation and rejuvenation activities</p> <p>b) Perform socialization, mentoring and counseling activities</p> <p><b>Intensification Activities:</b></p> <ul style="list-style-type: none"> <li>• Planting shade trees</li> <li>• Pruning</li> <li>• Sanitation of cocoa farms</li> <li>• Fertilization (performed at the beginning of the planting season)</li> <li>• Application of pesticides</li> </ul> <p><b>Rehabilitation Activities:</b></p> <ul style="list-style-type: none"> <li>• Implementation of side-grafting</li> <li>• Planting shade trees</li> <li>• Fertilization (performed at the beginning of the planting season)</li> </ul>	<ul style="list-style-type: none"> <li>• Perform maintenance and intensive care so that the success of the Gernas program can be felt more</li> <li>• More active role in farmers' capacity building activities such as socializing, coaching and training</li> </ul>

PARTIES INVOLVED IN GERNAS	CURRENT ROLE	EXPECTED ROLE
Farmers	<b>Rejuvenation Activities:</b> <ul style="list-style-type: none"> <li>• Demolition/cutting down of cacao trees</li> <li>• Planting shade trees</li> <li>• Make anjir and dig holes for planting cocoa seedlings</li> <li>• Fertilization (performed at the beginning of the planting season)</li> <li>• Planting of cocoa seedlings</li> <li>• Planting intercrop</li> <li>• Application of pesticides</li> </ul>	
Agency for Food Security and Agricultural Extension Workers (BKP4)	Supporting Gernas cocoa program through the provision of agricultural extension workers (PPLs)	Increase the number and improve the capacity of extension workers
Extension workers	Provide counseling, mentoring and guidance to farmers	Provide more intensive mentoring and coaching
Coffee and Cocoa Research Center (PuslitKoka)	<ul style="list-style-type: none"> <li>• Propagation of seedlings using the Somatic embryogenesis (SE) technology</li> <li>• Perform soil quality analysis to determine the type of specially formulated fertilizers</li> </ul>	Conduct research related to cocoa





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