The Engineering of Organization to Increase Added the Value Cocoa Beans in South Konawe Regency

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Abstract: The purpose of this research is to engineering the institutional that can coordinate and to manage the beans from the farmer to the fermentation of cocoa beans, which are expected to increase in, added the value (income) for the farmers. This research was conducted on farmers who are members of the Institute for Community Economics (IEM) Prosperous "cocoa" in South Konawe. Sampling technique of this research is purposive sampling the number of villages’ selected four villages, namely: Purema Lush, Teteinea, Horodopi, and Village Main Continent. From four villages, the number of respondents who selected set of 130 cocoa farmers.

The data of collection and information take through Fucus Group Discussion (FGD) and in-depth interviews with farmers or cocoa plantation owners, traders and other stakeholders. The method of the data analyze for the analysis of economies of scale organizational development done by used qualitative and economic analysis. The results of this research showed that farmers generally sell non-fermented cocoa beans. The Farmers are not interested in doing the fermentation caused because the price does not different vary much with the price of cocoa beans at crude. The another thing that causes the lack of interest of farmers are small-scale enterprises, the urgent need for money to meet the needs of families, uncertain markets, lack of capital, limited equipment and knowledge of farmers to pass ferment properly. The added value of cocoa beans can be improved through the management of cocoa bean fermentation. To get the added value that, so the fermentation activity it would be more efficient and effective if it is managed as a group in a single container business unit manager of fermentation. Grouping is embodied in the design of a simple organizational structure. The value added is calculated based on the rank of the quality of raw materials in the fermented cocoa beans.

Keywords: Institutional Engineering, Added value, Organizational Structure

1. Introduction

The development of economic local should rely on local resources owned and economic activity that is able to engage and support the majority of the population. Exploiting comparative advantage and competitive potential of the region is expected to ensure a source of income to achieving sustained development funds and increase regional economic performance (Eriyatno, 1999, Huseini M. 1999). Excellence or potential areas can be observed through indicators percentage distribution of gross value added sectors that make up the structure of the regional economy. The economic structure of the region is a direct picture of the composition of the entire production of goods and services the region. Changes in the structure of production would lead to a shift in the economic structure of the region.

Cocoa (Theobroma cacao-L) is one of the plantation commodities whose role is quite important for the national economy, particularly as a provider of employment and income, and foreign exchange. In addition, cacaos also play a role in encouraging the development of the region and the development of agro-industries. Today, Indonesia is the world's cocoa producers with a market share of 13.6%. The first and second major supplier of cocoa beans is the world Pantai Gading (38.3%) and Ghana (20.2%). This was achieved thanks to the success of the program of expansion and Movement Increased Production and Cocoa Quality which has been launched by the government since 2009 until now. At this time the plantations of cocoa in Indonesia recorder covering an area of 1,745,789 ha with total production reached 828 255 tones, spread almost all over the province with production centers in South Sulawesi, Southeast Sulawesi, Central Sulawesi, West Sulawesi, North Sumatra, East Kalimantan, East Nusa Tenggara and East Java. Approximately 94 percent of the cocoa plantation area is managed and owned by the community (Dirjenbun, 2012).

A problem in Southeast Sulawesi cocoa until now is the quality still low. The farmers of cocoa mostly cultivate cocoa pods become dry beans with the tools and how to improvise and the cocoa beans are still in the form of non-fermented. This leads to low quality of cocoa beans produced by the cocoa plantations in the Southeast Sulawesi. Not only in Southeast Sulawesi, as many as 90% of the national production of cocoa beans is also in the form of non-fermented. Because not fermented, leading to low quality of cocoa produced. This causes the price cocoa beans in Indonesia are relatively lower compared to the price of the same products from other producing countries, because of the implementation of the Indonesian cocoa prices. Other factors that lead to low quality of cocoa is the lack of processing facilities, lack of quality control and the application of technology at all stages of the processing of cocoa beans on the farmers that are not-oriented quality (Ministry of Industry, 2007; BSN, 2010). The low quality of cocoa produced is one of problems issue contained in cocoa farming and the solution should be pursued.

Cocoa plantations in Southeast Sulawesi approximately 96.28 per cent owned and managed by the community / farmers. At the 2011 years cocoa production reached 162
816 tones, which is managed by 159,074 households (KK) in an area of 246,502 ha. In detail land area, production, productivity and the number of farmers cocoa plantations in Southeast Sulawesi province in 2007-2011 are shown in Table 1.

<table>
<thead>
<tr>
<th>Year</th>
<th>Land of Area</th>
<th>Production</th>
<th>Productivity</th>
<th>Number Of Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ha</td>
<td>%</td>
<td>Tones</td>
<td>%</td>
</tr>
<tr>
<td>2007</td>
<td>200,042</td>
<td>0</td>
<td>134,755</td>
<td>0</td>
</tr>
<tr>
<td>2008</td>
<td>202,012</td>
<td>0.98</td>
<td>115,898</td>
<td>-13.99</td>
</tr>
<tr>
<td>2009</td>
<td>235,955</td>
<td>16.8</td>
<td>131,830</td>
<td>-13.75</td>
</tr>
<tr>
<td>2010</td>
<td>241,433</td>
<td>2.32</td>
<td>145,818</td>
<td>10.61</td>
</tr>
<tr>
<td>2011</td>
<td>246,502</td>
<td>2.1</td>
<td>162,816</td>
<td>11.66</td>
</tr>
<tr>
<td>Average</td>
<td>225,188.80</td>
<td>5.55</td>
<td>138,223.40</td>
<td>5.51</td>
</tr>
</tbody>
</table>

Source: Department of plantation and Horticulture Southeast Sulawesi, 2013

Industrial processing of cocoa beans in Indonesia only able to absorb about 30 percent of the total national production. Processing industry is relatively large industrial and urban areas located around distant from the centers of production. These conditions cause the value-added of commodities especially industrial activities cannot be enjoyed by farmers planters either directly or indirectly, except enjoyed by a small group of people who do the processing business. Special area of industrial centers in Southeast Sulawesi cocoa according to BPS 2010 that the number of planting areas or productive land in 12 counties and cities amounted to 218,950 ha. The county of development centers largest cocoa commodity in Southeast Sulawesi there are four districts namely Kolaka (86,637 ha), North Kolaka (68,503 ha), South Konawe (19,376 ha) and Konawe (16,965 ha). Fourth district has a land area of approximately 87.5% of the total area of the development of cocoa in Southeast Sulawesi.

Largest users of cocoa beans are food industry and beverage that is growing due to population growth and social welfare. Cocoa traded in physical form as dried beans that are classified as primary products this product is produced by an industry group that acts upstream process cocoa pods become dry bean yields. The processing of plant Cocoa bean was built closer to the source of raw material (garden) with the main processing stages of fermentation, drying and sorting. The main consumers of cocoa beans are the cocoa intermediate industry, which is generally located in big cities. The group this industry serves transform cocoa beans into intermediate products (intermediate products) like pasta, fat, oilcake and cocoa powder. The third product is then supplied to the downstream industry to then further process into food products and beverages ready for consumption by the public, such as, chocolate candy bars, chocolate praline powdered milk, crackers, ice cream, biscuits and so on. Aside from being a raw materials food and beverage Aside from being a food and beverage raw materials, intermediate products of cocoa is also used as raw material for pharmaceutical and cosmetics industries, among others, to make soap, lipstick, skin moisturizers, and so on (Simon, et al., 2007; BKPM, 2010; and Bina UKM, 2010).

The quality of cocoa in Indonesia is not inferior to the world cocoa in which if done fermentation with the good production achieve the similar taste with cocoa from Ghana and advantage the cocoa in Indonesia not easily melt that the perpetrator the farming cocoa is still relatively low the amount of cocoa produce the result of cacao can provide added value as as well as the competitiveness of quality cocoa in the world market. The processing industry is relatively large industrial and urban areas located around distant from the centers of production. These conditions cause the value-added of commodities especially industrial activities cannot be enjoyed by farmers planters either directly or indirectly, except enjoyed by a small group of people who do the processing business. Special area of industrial centers in Southeast Sulawesi cocoa according to BPS 2010 that the number of planting areas or productive land in 12 counties and cities amounted to 218,950 ha. The county of development centers largest cocoa commodity in Southeast Sulawesi there are four districts namely Kolaka (86,637 ha), North Kolaka (68,503 ha), South Konawe (19,376 ha) and Konawe (16,965 ha). Fourth district has a land area of approximately 87.5% of the total area of the development of cocoa in Southeast Sulawesi.

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condition often gets a price cut, as a result, reduced farmers' income. The decline in the quality of cocoa at this time caused processing which is still not good. Most people use the processing facilities are still low, there are still many who have not yet implemented the technology to produce a quality product. One way that can be traveled is through fermentation processing. With a standardized fermented, cocoa farmer will get the selling price of cocoa higher than cocoa prices unfermented. Some of the constraints that caused of the farmers are reluctant to take the fermentation include: the process of fermentation requires facilities/means of additives (e.g. fermentation boxes, etc.), the processing of longer and the price of cocoa fermentation did not differ significantly from with the cocoa non-fermented (at random) so most farmers want to earn money selling immediately after harvest cocoa. In addition, the collectors still requires a non-fermented cocoa processed with a purchase price that is very competitive compared with cocoa fermentation. The Conditions this has encouraged farmers are reluctant to make the process of fermentation. The need will cocoa bean fermentation, not only from within the country but also for export: Other opportunities are the presence of the cocoa industry in Southeast Sulawesi, PT. Kalla Kakao Industry (KKI), in the district Ranomeeto, which is scheduled to be operational by 2015 years, The industry is in need of 35,000 tons of cocoa beans fermented annually. The products produced in the form of cocoa powder, cocoa liquor and cocoa butter to be exported to the Central East, China, India, and Europe.

The presence of the factory that make the expectations for the cocoa farmers Southeast Sulawesi in general and South Konawe Regency especially to improve the survival rate by the consideration that (1) The location of the factory closer so cheap transportation costs, cause an increase in the price of the farmer. (2) Open employment opportunities for young workers in the cocoa sector, thereby reducing the urbanization of young workers to the city. (3) Encourage farmers to produce beans fermentation, the selling price is higher than the random bean In order to realize these conditions, of course, an effort to develop a cocoa bean fermentation in Southeast Sulawesi, particularly in South Konawe Regency is needed. This research aims to develop and explain the engineering institutions (organizations) in the context of the implementation of fermentation technology in order to meet the standards and managed efficiently. Institutional engineering is intended as an attempt to change the performance and existing institutional structures to manage the allocation of resources and distribution in order to achieve an increase in value-added and income of farmers through the effective and efficient management.

2. Literature Review

2.1 The Institutional of Concept

The theoretical of the study that became the basis of this research is institutional. Institutional theory is important to understand in order to determine whether the policy made by the government to encourage or inhibit the development of the organization. Then, to determine whether the development of these organizations have been supported by adequate institutional. The policies and institutions are difficult to separate. Policies are made without institutional foundation that good does not give the development process of maximum similarly, the institutional that good, but not supported by good policy would make the goal of development is difficult.

Empirical facts show the failure of the agro industry is often sourced from the government's failure to create and implement the right policies and ignoring the institutional development should be based on the entire development process both in terms of legal, social, economic, political and technology failures occur because governance bad institutional always been an important issue in the development of the organization and development in general Setyowati (2007). In developed countries the good institutions is the key of the successful management of the country. So far, the government emphasizes economic development with emphasis on the development of physical infrastructure, technology, politics and very little attention to the development of institutional infrastructure.

Government policies tend to be consistently changing and difficult to be implemented in full and require serious attention because basically almost all failures due to a fundamental issue, namely the failure of policy and institutional failures. Institutional is an element in creating and shaping policy. Policies set out in the form of rules and a regulation is a key element in the institutional. The Analysis of about the linkages and impact of institution on public policy is considered incomplete if it does not pay attention to the combination of public policy analysis and institutional analysis of the agro-industry organizations. The Institutional or institution is generally seen the people as the organization, the organization is really just simply a container while the means institutional includes regulation, ethics, code of conduct, attitude and behavior of a person an organization or a system. Institutions in the field of sociology and anthropology emphasis norms behaviors and customs. In the political field of institutional emphasis on regulation and collective action in the public interest, knowledge of institutional physiology see human behavior, emphasizing the science of law from a legal standpoint as well as the instruments and the legal/litigation.

Neo Institutional Economic to definition of institutional in term of costs transaction and collective action. Transaction costs include the analysis of ownership and control of natural resources, information asymmetry and opportunistic behavior (Williamson & Maslen, 1996). The analysis and Institutional development requires support approach analysis from the field of behavior. There are various definitions of institutions developed by various experts in accordance with the scientific background. Ruttan and Hayami (1984) to defines the institutions by the rules in a community group or institution is generally seen the people as the organization, the organization is really just simply a container while the means institutional includes regulation, ethics, code of conduct, attitude and behavior of a person an organization or a system. Institutions in the field of sociology and anthropology emphasis norms behaviors and customs. In the political field of institutional emphasis on regulation and collective action in the public interest, knowledge of institutional physiology see human behavior, emphasizing the science of law from a legal standpoint as well as the instruments and the legal/litigation.
and or competition in which there is a contract or transaction that is done to reduce transaction costs.

North (1990) to define institutions as the boundaries is made to form a pattern of a harmonious interaction between the individuals in the interaction of political, social and economic. The next North divides institutional into two informal and formal. Informal Institutional are institutional presence in the community generally unwritten, customs, traditions forbidden, agreements, conventions and the like with a variety of names and titles classified as informal institutions While formal institutions are the written rules as legislation, agreements (agreements), role contract, regulatory economics, business, politics and others. Agreements in force both at the international, national, regional and local belonging to the formal institution Yeager (1999) quoted from Yustika (2006) summarize the institutional as rules (rules of the game) in the community. These rules include regulations that establish the community to interact. Pejovich, (1995) quoted from Setyowati (2007) noticed that the institutional can reduce the uncertainty inherent in human interaction through the creation of a pattern of behavior.

Yustika (2006) defines institutions in the two classifications. First, when it comes to the process; the institution refers to an attempt to design the pattern of interaction among economic players so that they can conduct transactions. Secondly, when it comes to goals, then institutions concentrate on creating economic efficiency based on the structure of economic power, political, and social interculprit. The diversity definition of the various experts often make many people equate institutional/institutions with the culprit. The diversity definition of the various experts often make many people equate institutional/institutions with organizations. Redic is not absolutely wrong but also not always true depending on the context. However, for the purposes of the analysis of the two must be clearly distinguished. Equate institutional organization in the context of institutional economics is misleading. And this has been commonly found in scientific papers analyzing institutional but misdirected. Setyowati (2007), summarizes the institutional definition put forward by the various states. They have certainty about it. This thought is conveyed by members of the community as something that must be followed and adhered to (sanctioned strength) with the purpose of the creation of order and certainty interaction among community members. Interaction is related to the economic activity, political or social.

2.2 Institutional characteristics

Institutional is dynamic according to changes in context. Williamson (2000) analyze the institutional changes in four levels, namely (1) the level of social (community), (2) the level of formal institutions (formal institutional environment), (3) the level of governance (governance), and (4) the change is continuous. More specifically analyzing the four levels of institutional changes that reflect the institutional characteristics can be presented in the following figure.

![Four Level Model of Institutional Change by Williamson, 2000](image)

2.3 The Institutional of Change

Hanisch and Schlueter (2000) classify theories of institutional change in the three groups, namely: based on economic efficiency; based on the theory of conflict distribution and based on the theory of public policy. The theory of institutional change based on economic efficiency has three main currents of thought. The first thought currents delivered by Sardar Ahmad (1999), a leading Austrian economist and a major supporter of neo-classical economics. According to Hayek, institutional change is spontaneous and not planned, but the result of deliberate action. This means that a person or group of people will not make institution/rules when no impulse that demands such a rule should exist. Institutional change is that the births of a spontaneous urge to create spontaneous or institutional change (unintentionally). Then create or realize its institutional activities are deliberating (intentional).

The theory of change institution says that an institution / rules changed because to the efforts to protect the rights of ownership (property rights). The means that a person or community members are encouraged to create a rule its main purpose is to protect the property rights of the interference coming from outside the existence of land tenure system (the system of land tenure) to indigenous people aims to land rights distributed among the members of these communities and they have certainty about it. This thought is conveyed partly by Hanisch and Schlueter (2000). The Third Thought
institutional economic change based on economic efficiency, among others, presented by Williamson, (2000), Economic and Legal experts. According to him, the institution / rules will continue to change / move dynamically in order to minimize transaction costs (transaction costs) Changes in the cost of information, law enforcement, changes in price; technology affects the incentive / motivation of a person to interact with others. Everything will affect institutional change (North, 1990).

Economic activity is strongly influenced by the layout between economic actors (political economic theory), design rules (transaction cost economics theory), norms and beliefs of an individual/community (social capital theory), the incentive to collaborate (collective action theory), the model contrived agreement (contract theory), the choice of ownership of physical and non-physical assets (property rights theory), and others. In essence, there is always an incentive for individuals to deviate so that the economic system cannot be left only guided by the market. In this case the necessary institutional non-market (non-market institution) in order to protect the market does not get stuck in an endless failure, by way of designing institutional rules.

Multidisciplinary approach is very important for photographing the problem of economic social, legal, political, cultural, and the other as a one unit of analysis (Yustika, 2008). To near the symptoms of the economic, institutional economics that used the qualitative method, are built on three important premises, namely: the particular, subjective and, non-predictive First the particular is defined as heterogeneity characteristics of the community. This means that every social phenomenon has always specifically refer to particular social conditions (not applicable to social condition any other). Through the premise that particularity actually the research qualitative of directly to speaks two things: 1) the belief that social phenomenon is not singular; and (2) qualitative research humbly has shown its limitations (Yustika, 2008). Second the means that subjectively here real does not mean that researchers do research subjectively but reality or social phenomena. Because it is closer to the situation and the conditions that exist on the data source, by trying to put yourself and think from the perspective of "insiders" Third, non-predictive that the qualitative research paradigm Third, non-predictive that the qualitative research paradigm did not enter the territory of the future predictions, but the emphasis was on how the meanings, concepts, definitions, characteristics, metaphors, symbols, and descriptions So the point of compressive to explain intact the process of behind the phenomenon.

The result of the study Bappenas (2006) that the Assessing Performance and Sustainability of Microfinance Institutions: The Case of Village Credit Institutions of Bali found the performance of Village Credit Institutions (LPD) influenced by institutional covering formal and informal institutions. Findings reveal that traditional institutions contribute to portfolio performance, leverage, capital adequacy ratio, productivity, efficiency, profitability, and financial feasibility of the LPD.

### 2.4 Development of Cocoa Agro-Industry

The Cocoa plants can grown fertile and bear fruit in the tropics. Located between 2000LU with an altitude of 1-600 m above sea surface but sometimes it can still grow at an altitude of 900 m above sea surface. The Cocoa plants are not resistant to prolonged drought. Rainfall is needed is 1600- 3000 M³ per year. Daily temperature for growth is 24°C-28°C with humidity of 80% So far, there are two types of cacao are cocoa edel, cocoa glorious and cocoa lincak. Mulia cocoa generally provided by large plantations and has the advantage of aroma and taste, but require intensive care. Lindak cocoas are generally provided by plantations people or farmer. This type of cocoa has high productivity and relatively easier to grow than the mulia cocoa. The different physical between mulia cocoa and lindak cocoa the physical differences between the mulia cocoa and lindak cocoa can be seen in Table 2.

#### Table 2: Physical differences between Cocoa Edel (Mulia) and Cocoa Bulk (lindak)

<table>
<thead>
<tr>
<th>No</th>
<th>Cocoa Edel (Mulia)</th>
<th>Cocoa Bulk (lindak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The shape of fruit ovoid to oval</td>
<td>The shape of the fruit generally round to oval</td>
</tr>
<tr>
<td>2</td>
<td>The color of fruit is pink</td>
<td>The fruit color is Light green</td>
</tr>
<tr>
<td>3</td>
<td>The fruit is big and round</td>
<td>The Seeds flattened and small</td>
</tr>
<tr>
<td>4</td>
<td>The weight of seed dry more than 1.2 g / seed</td>
<td>The weight of seed dry average of 1 gram / seed</td>
</tr>
<tr>
<td>5</td>
<td>Color of the cotyledons the dominant of white</td>
<td>The color of the cotyledons the dominant of purple</td>
</tr>
<tr>
<td>6</td>
<td>The fat of content more than 56%</td>
<td>The fat of content more than 58%</td>
</tr>
<tr>
<td>7</td>
<td>The size and weight of seeds is relatively homogeneous</td>
<td>The size and weight of seed heterogeneous</td>
</tr>
<tr>
<td>8</td>
<td>The aroma and taste better</td>
<td>The aroma and taste deficient</td>
</tr>
</tbody>
</table>


Habitat the plant of cocoa is in the tropical forest. Cocoa is a tropical plant that likes to be shade (Shade loving plant) with a yield potential varies between 50-120 fruits/tree/year. Varieties commonly consist of: Criollo, Forastero and Trinitario (hybrid) which is a hybrid. Cocoa plant maintenance performed during the life of the cocoa plant. Maintenance is the main pruning is done either on the immature although plant produces. The aim is to establish a framework of strong and balanced. Pruning is done regularly with a frequency of 6-8 times a year. Pruning good and regular will encourage the plants to grow healthy and high yielding.

Organisms’ intruder plants (OPT) at cocoa quite a lot. The main of OPT in this plant include pest Heliopolis sap damaging fruit and young leaves/shoots, stem borers, mouse, and driving, cocoa fruit, or commonly known by CPB (Canopomorpha cramerella). Pest control technology Heliopolis sap that the recommended is chemically and biological. Control of chemical pest conducted if more than 15%. The control of biological can use the black ant (Dolichoderus thoracic). Control technology BPK are...
recommended is control an integrated (PST) with frequent harvesting, Regular pruning, sanitation and fertilization. Regular pruning, sanitation and fertilization. In addition, it is recommended to do the filtering fruit when the fruit is still small (size 8-10 cm) with a plastic bag underneath the open. The Control BPK can also use biological insecticide free harvesting.

The disease of cocoa that very harmful the disease fruit rot caused by the fungus Phytophthora palmivora and Vascular Streak Dieback disease (VSD) caused by the fungus Oncobasidium theobromae. The attacks of fruit rot. Usually starts from the tip or the base of the fruit. Fruits are attacked will enlarge with brown spots blackish with a clear boundary, which further widens and eventually all parts of the fruit becomes black and rotten. The part of rod infected the affected areas (brown-black). The technology that is recommended to control rot diseases of fruit is to manipulate environment plants to avoid damp such as by doing pruning and shade plants regularly, especially during the rainy season. Rotten fruit collected and then buried as deep as 30 cm. Control of fruit rot disease can use a chemical fungicide active ingredient copper (Cu) with a concentration of 0.3% formulation of 2-week intervals (Sri Mulato, 2012).

The Feature of disease VSD is yellowing leaves with green splorches. In the incision former sitting leave that sick looks three blackish brown. Brown streaks on the wood tissue, enlarged lenticels on twigs, leaf necrosis of bone deficiency symptoms of elements such as Ca. The disease is spread through Basidiospores were flown by the wind during the night. Progression of the disease was greatly aided by the humidity and high rainfall and cool temperatures at night. The Control of this disease is done by sanitary pruning that cutting branches sick up to the limit of symptoms brown line in the xylem, plus 30-50 cm below it. In addition, if the plant has been attacked by weight, then eradication is dismantling plant (Faisal Assaad et al., 2009).

Agro-industry is an activity that utilizes that utilizes agricultural products in general covering (Agriculture, Livestock, Fisheries and Forestry) as raw materials designing and providing equipment and services for the activities of a product that has selling economic value. The development of agro-industry is one option to consider, as a resource-based industry, agro-industry can potentially increase foreign exchange and employment. Based on the potential, some commodities and agro-products which can be developed in the future include: starch-based products; non-timber forest products, oil and its derivatives, essential oils and natural flavor, non-rubber polymer material and non-fish marine products. With thus, agro-industry is a strategic move to increase the added value of agricultural products through the use and implementation of technology of technology, expand employment and improve social welfare.

Continuity the agro-industry is also determined by the ability of in the procurement of raw materials. However, procurement of raw materials do not constitute the dominant issue while marketing is seen as the second issue, because good the marketing and procurement of raw materials jointly determine the success of agro-industries. But because of the assessment agronomic takes time and considerable of resources, so identification of market needs is often done first. Another reason is that the land can be used for a variety of plant or livestock, temporary marketing assessment can choose a variety of alternative plants or livestock.

A characteristic of a good agro industry is the presence of dependencies between the elements of the agro-industry, the procurement of raw materials, processing, and marketing of products. Agro-industry should be viewed as a system consisting of four linkages as follows:

a. The linkage of production chain, is the link between the stages the operational began from current agricultural raw materials to processing and then to the consumer.

b. The linkage wisdom Macro-micro are the links in the form of the influence of the policies the government's macro on the performance of the agro-industry.

c. The linkages Institutional is the relationship between different types of organizations that operate and interact with production chain agro industrial

3. Research Method

The object of this study is the farmers who are members of the Institute for Community Economics (LEM) in four sample villages namely: Purema Subur Village, Teteinea, Benua Utama, and Horodopi Village. The collection of data and information is done through focus group discussion and in-depth interviews with farmers and or cocoa plantation owners, traders and other stakeholders, traders and other stakeholders. Thus the technique of sampling in this study was purposive sampling through two stages. First, the determination of the amount of sample villages, four villages were selected sample (Fertile Purema, Teteinea, Horodopi, and Main Continent). Second, the determination of the number of respondents from the four sample villages as many as 103 people consisting of: cocoa farmers, cocoa plantation owners, traders and stakeholders.

Qualitative research data collection methods (human) are primary instrument. Data collection method in this study is: (1) observations, this technique is done to find objective phenomenal data where a respondent was not known by observed object. This technique is done in some places or situations, either planned or unplanned, but always according with needs of data relevant to research objectives, (2) interviews the respondents conducted freely and deeply, and not scalable. Those interviewed were selected farmers or cocoa plantation owners and (3) study documentation that carried out by taking photos of activities respondents. In addition, the documentation also conducted to collect notes, and text that related to research. Data collection in this study will be carried out in 3 stages: First, data is collected by observing and interviewing several people from farmers or cocoa plantation owners and key informants who knew a lot about the farmer to the fermentation of cocoa beans. Second, in-depth interviews are done to respondents who considered a source that has a lot more knowledge and deep understanding of information required. This stage also is made further observations, by collecting various relevant
texts. Finally, focus group discussions conducted to confirm deeply observations, interviews, and interpretation of information that has been achieved, before final conclusion made. Data/information collection strategies are used to facilitate data collection or accurate information acquisition. The Steps used is follows: First, informant goes at place and at most fun time (at leisure). Second, to know rightly respondents address. Third, to visit each respondent many times if information is still required as part of triangulation. The method of analysis using qualitative and economic a processing of fermented cocoa analysis economic analysis is used to quantify the added value that can be obtained from the farmer value added is calculated from the difference in price between the cocoa non-fermentation with cocoa fermentation. This calculation of method, created a simulation based on the level of the yield of cocoa beans. Component costs are taken into account to get cost of production cocoa fermentation: the purchase of raw materials; collection of raw materials, weighing, and structuring in fermentation tanks; reversal process; laudering; drying; packaging materials; washing water; depreciation of equipment; and capital interest.

Formulation production price fermented cocoa used the same of assumption the basis for calculating namely:

1. The price of dry cocoa non fermentation Rp. 32,000/kg
2. The price of wet cocoa Per. 10,560, calculated by multiplying the yield fermentation of prices cocoa non fermentation.
3. The yield of fermentation: 33%; 40%; 50% and 60%
4. The amount of wet cocoa in each fermentation tubs of 600 kg and using 2 tubs
5. The time of fermentation for 5 days
6. The rate of capital interest of 9% per year.
7. The method of straight-line depreciation.

Based on the information activities of this fermentation, then be made to the design organization that will manage the fermentation activity is accompanied by a description.

4. Results and Discussion

The engineering of Institutional can be interpreted as an attempt to alter or design the institutional which is also called good organization that new or change existing aimed at solving the problem of social and economic faced by society. This means that institutional engineering is an attempt to change the performance and institutional structures to manage the allocation of resources and distribution in order to achieve at the diversity desirable (Johnson, 1996 in Pakpahan, 1998).

The processing of cocoa fermentation consists of five stages (1) Procurement of raw material is the raw material used is wet cocoa or cocoa newly harvested Availability of raw materials often do not fit the needs of the processing. (2) Sorting the cocoa beans aims to clean up cocoa beans from contamination such as leaves and separate the cocoa beans the rotten with cocoa beans were good. The cocoa beans wet that have been sorted and then put into crates for fermentation immediate fermentation process (3) The processing of cocoa fermentation conducted for five days in order to get a good quality cocoa; (4) Drying is done by using a rack or drying directly on the floor drying to produce cocoa dry water content of 7-8%; (5) Packaging and storage is the final stage of processing cocoa fermentation and is ready to be marketed. Packing is through the process of sorting and washing back that aim to clean from dirt leftover cocoa fermentation process. Based on the work process, then the following will be show calculation of the cost of production of fermented cocoa beans. The method of calculation used, is the calculation only on the cost of production, which reduce the cost of depreciation of equipment and the cost of interest of 9% per year.

With an estimated recovery rate of 33%, obtained by the total cost of production is needed to process 1,200 kg of wet cocoa beans is Rp. 13,975,894, - plus the calculation of the cost of capital of 9% per year, or 0.375% of one the production cycle for 15 days, so the total cost of processing cocoa fermentation to Rp. 14,028,304, largest cost component is the purchase price of the raw material of wet cocoa beans from farmers then the highest cost other is the cost of drying, sorting up to packing as Rp. 600,000, can be seen in Table 3.

Table 3: Details of the cost Production Fermented Cocoa

<table>
<thead>
<tr>
<th>Description</th>
<th>SAT</th>
<th>Unit</th>
<th>Price/unit (Rp.)</th>
<th>Amount (Rp.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase of Raw Materials</td>
<td>Kg</td>
<td>1,200</td>
<td>10,560</td>
<td>12,672,000</td>
</tr>
<tr>
<td>The collection of raw materials, weighing,</td>
<td>HOK</td>
<td>1</td>
<td>50,000</td>
<td>50,000</td>
</tr>
<tr>
<td>and structuring in fermentation tanks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flips 2 x contract</td>
<td>Basin</td>
<td>2</td>
<td>25,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Washing (contract)</td>
<td>Basin</td>
<td>2</td>
<td>50,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Drying, sorting and packing</td>
<td>HOK</td>
<td>6 x 2</td>
<td>50,000</td>
<td>600,000</td>
</tr>
<tr>
<td>The Cost sacks, rope, twine</td>
<td>Pack</td>
<td>6</td>
<td>5,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Water of washing</td>
<td>M³</td>
<td>0.5</td>
<td>50,000</td>
<td>25,000</td>
</tr>
<tr>
<td>The Depreciation (tubs, scales, rack)</td>
<td></td>
<td></td>
<td></td>
<td>438,334</td>
</tr>
<tr>
<td>The modal interest (9%) 12 mm/ 15 hr</td>
<td>%</td>
<td>0.375</td>
<td>50,000</td>
<td>52,410</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>14,028,304</td>
</tr>
</tbody>
</table>

Notes: Kg = kilogram; HOK = Day of Work; SAT = Units of Measure; Rp = Rupiah

4.1 Value of Production

Cocoa Bean Fermentation that produced from raw materials as much as 1,200 kg for recovery rates a 33% as much as 396 kg. If the cost required processing the cocoa fermentation Rp. 14,028,304, so the value of production of fermented cocoa beans to Rp. 35 425/kg of dry cocoa fermentation.

Based on interviews with middlemen is said that usually there is a reduction (discount) price of at least 3% of the contract value as a result of non-fulfillment of agreed quality in the contract, but if the farmer can produce better quality
then the farmer groups will get an appreciation or an additional premium. In addition, when added to the level of profit out the expected processing of 5% then there are additional costs 8% of the value of production (3% and 5% price discount profit group) then the value of fermented cocoa products to Rp. 38 259/ kg.

4.2 Analysis of Added Value

Samudro (2009) explains that basically a value-added report is a modified reports income statement. It is also disclosed by Sri Mulato (2012) who said that, the statement added value can be understood as verse modification of the income statement. As a result, it can be derived from the income statement. So far, the concept of value added is considered as a substitute for the concept of profit, so it is natural that many expectations addressed to this concept. The findings as mentioned above should make each thinkers more critical if see the concept would serve as the basis for value-added cocoa fermentation.

The research of descriptive this qualitative also to use the concept added value from the calculation of the value of the difference between the total costs incurred for processing at the level of the selling price of the goods. According to economic calculation, the added value also mention that as profit. To get an estimate of the added value that can be obtained from the results of this processing, it will be a simulation of the recovery rate is different. Which has that using the yield of 33%, and the highest was 60%.

The high value of yield of 50-60% is used in this calculation, based on the results of interviews with the presidents of the LEM because the raw materials used are cocoa bean derived from the tree which when viewed from their physical appearance seed of course significantly different because it contains so the the quality is better than the local seed rather deflated. Based on the experience of the resource persons chairman of the LEM Prosperous Teteineara Purema and Lush cocoa beans derived from the Cocoa beans come from plants side grafting better for fermentation because it will dry faster if the drying, when compared to other types of cocoa beans locally. Also the rate higher the yield reached 60%. The amount of the added value obtained by farmers (members) will increase, if the processing of the fermentation is done right so as to produce the appropriate quality standards, so it is not in erring discount (reduction) as a result of the incompatibility of the agreed quality. Based on results of the simulation the calculations in Table 2 it can be pointed out that the views of the difference in price levels in accordance with the wishes of farmers Rp. 3,000 to Rp. 7000, so the added value is highest in the yield of 33% to 40%. The added value obtained Rp. 7.352- Rp. 8,030/kg. At that time the price of cocoa fermentation in want of between Rp. 38 529 up to Rp. 37 611/kg.

In the recovery rate of 50-60% the farmer will get the farmer will gain added value from Rp 6,741 to Rp. 6,333, and the level reasonable price or cocoa bean fermentation should Rp. 37 027- Rp. 36 637. This means it is higher than the price of cocoa beans at random, only Rp. 32,000 per kg. Based on these calculations; it can be said fermentation of cocoa beans will increase the added value in the form of additional income for farmers LEM prosperous if the management is done in groups, or the number of fermented cocoa beans in as much as 1,200 kg per shift. To support the implementation of this fermentation activity in the LEM, there is a need there is a need mechanism clear and sustainable can support raw material supply from member farmers.

| Table 4: Simulation value added cocoa fermentation by the yield rate |
|-------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Description             | SAT 33%         | SAT 40%         | SAT 50%         | SAT 60%         |
| 1. Raw Material Prices  | Rp. 10,560      | Rp. 12,800      | Rp. 16,000      | Rp. 19,200      |
| 3. The result of Production of 1,200 kg | Kg. 396 | Kg. 480 | Kg. 600 | Kg. 720 |
| 4. Value of Production of Cocoa Fermentation | Rp. 35,425 | Rp. 34,825 | Rp. 34,284 | Rp. 33,923 |
| 7. Value Cocoa Fermentation | Rp. 38,259 | Rp. 37,611 | Rp. 37,027 | Rp. 36,637 |
| 8. Difference Value Price (Non-Fermented Cocoa Rp. 32,000/Kg) | Rp. 6,259 | Rp. 5,611 | Rp. 5,027 | Rp. 4,637 |
| Total value added | Rp. 8,030 | Rp. 7,382 | Rp. 6,741 | Rp. 6,333 |

Notes: SAT = Units of Measure; Rp. = Rupiah.

4.3 Mechanism of Procurement Raw Materials Cocoa Beans

Taking into account various aspects such as the amount production of farmers that limited minimal equipment lack of knowledge bad road conditions at harvest time, the distribution of land the proximity of the house and efficiency, the mechanism of procurement of raw materials to be processed into fermented divided into:

1. Processing the fermentation was performed centrally in LEM of Prosperous the village

2. Processing fermentation done in each of the hamlets in the village, and after dry and then deposited into the LEM for the Watt and subsequently sold to the customer, or from processing in the village later mediation by the village LEM for marketed.

If the fermentation is done by the business unit in the village then its presence should be placed in a location where all members can easily reach them in this way, members will deliver wet cocoa beans processing unit to the village. And then be processed into cocoa fermentation. Submission of
wet cocoa beans are accompanied by the appropriate payment of the price of grain quality are submitted.

With this type of machinery and equipment fermentation that used the amount of fermented cocoa beans of wet in need of 1,200 kg each time processing.. This means that the long time fermentation of 5 days, so the processing can be done up to 6 times a month. So then if just one unit processing that need amount of cocoa beans as much as 7.2 ton or will produce cocoa bean fermentation as much as 2376 kg (33% yield) in a month. If the production capabilities adjusted with the harvest season each year only 3.4 months, then the total raw material requirements of at least 21.6 tones and produce as much as 7128 kg of cocoa bean fermentation (3 months of production). The number of farmers involved as many as 44 people (the assuming of each depositing 500 kg for 3 months of harvest).

This model can also be developed if you choose the second alternative, where the processing is delegated to each hamlet which is still in the 1 LEM in the village that This is done not only for easy access to the members of processing units but also to be able to enhance the members' ability to produce LEM. For example, if in one village there are three hamlets, the potential to produce fermented cocoa beans as much as 21.384 tons per year, and the number of farmers who can take as many as 130 people. This potential is not too high given the number of residents in each village amount exceeded the that needed and the opportunity to supply the PT. KKI industry is still quite large, because the company needs 35,000 tons of fermented cocoa beans per year. In this connection, will be further described will be further described about the institutional engineering in terms of design organization devoted to increasing the added value of cocoa beans produced by farmers in South Konawe

4.4 Structure design of organization and job description fermentation processing unit

The organization is a tool used by a person in coordinating activities to generate value or something the expected in achieving targeted goals In the face of changing technology and business competition, design (engineering) organizations may change from the previous state to another form is selected because it is more effective.

An organization is said to be effective is usually measured by three indicators of performance, control, innovation, and efficient in achieving the targeted goals Control here means the ability to control the external environment and its ability to attract customers and the resources needed. Innovation is the development of processes, structure, culture, and often involves the development of human resource skills needed in the realization of products/services to follow the development of innovative business Efficient means that the development and facilities and infrastructure companies in support of procurement and distribution at a time when appropriate and effective use of the budget

4.5 Organizational structure LEM prosperous before any changes

Institutional performance LEM Prosperous shows that the institutional cluster (village) has not been able to overcome the problems faced by its members, in particular the ability to provide loans for existing business units are not well developed therefore, of institutional this cluster needs to be done re-engineering to further optimize its role. Starting from it those so one of forms is the expansion of the activity processing of unit fermentation needs to be done professionally The organizational structure of Prosperous LEM the current can be shown in the following figure.

![Organizational structure LEM prosperous before Engineering](image)

Based on Figure 1 shows that the organizational structure of the LEM Prosperous the current, is still a simple shape, with a basic structure in accordance with the constitution and by-laws (AD/ART). Despite the fact that no institution has had business units, such as savings and loans and trade (inputs and nurseries), but management is not within the framework of but the management is not within the framework of a formal structure, because all the units are managed directly by the chairman, secretary and treasurer. This seems from the lack of development of these units. This condition may be caused by lack of capital and managerial capabilities administrators. For that, we need a LEM institutional engineering.

Esman (1986); Sri Mulato dan Edy Suharyanto (2010) institutional development can be defined as the planning, structuring and guidance of new organizations or existing rearranged to realize; (1) changes in the values, functions, technology, physical and social, (2) define, develop and protect normative relationships and patterns of a new action, (3) the support and completeness in that environment Institutional development of cocoa farmers is directed to establish cooperation through business groups in which will be formed new functions and new norms that will govern all activities of the organization in achieving its goals. In addition, institutional development will be easier when it comes to a functional relationship, so that institutional development fermentation unit directed to functional
cooperation to achieve common goals. Particularly through cooperation between members of the business units LEM Prosperous, and to ensure the market in make partnership with industry that KKI. The Design of organizations fermentation processing unit carried by the following stages:

1. Determine the level of organizational hierarchy
2. Determine the amount of units or span of control
3. Classify positions in the organization
4. Naming job titles
5. Draw the structure of the organization

Initial stages of designing the organization fermentation processing unit that determines the level of organizational hierarchy. Each organization has its own uniqueness accordingly. The considerations initial to in designing this organization is a scale organization that is still modest with the amount of staff that is still little. In addition, other considerations are used in order to organization be more effective is the level of communication performance, work and business benefits. Based on the observations and opinions of the practitioners there lines correlation between the number of hierarchy with the number of workers (members) in a company. Most organizations with scale 1,000 employed has a hierarchy of not more than 4 levels, consisting of the CEO department manager (function), supervisors, and labor operations (Yussi Santoso et al, 2013).

Based on situation and condition the existing the design hierarchy the organization formed consists of three levels, namely: business unit managers, supervisors’ functional and technical workforce / operational (span of control). The next step is to determine how much should be in the form of working groups, of how many people in a work unit. There are the factors that can determine the level of span of control is needed, namely; the complexity and the internal correlations between each work of his subordinates. The result of survey Woodward, 1965 in Yusi (2013), found that an average of 6 chief executive position of 5 industrial companies in observe, manage more than 12 positions. And there is a row of supervisors in the field of mass production with an average span of control of his approaching between 40 to 90 people.

Given the scope of work organization LEM Welfare this still limited so the structure will be simpler for that amount of staff needed a few others. Therefore then, the span of control is limited and grouped into three organizational functions most needed, namely, the production function; administrative function and marketing functions. These functions will each be governed by a one supervisor (supervisor). As a business unit, and the unit was named processing units fermentation which are under the authority of the chairman of LEM.

![Organizational Structure](image)

**Figure 3:** Organizational of Structure the Engineering LEM Processing Unit Fermented Cocoa

The leader of the institution called the manager of the unit. Employees who are in the bottom consists of the production (fermentation supervisor); administration and finance; and marketing. In the production will have 3 affairs that matters logistics manager of incoming raw materials and outgoing, which manages the affairs of the quality of the testing problem in the quality of cocoa beans received from famers and test the quality of goods produced. At the operator will take the problem the process of production particularly with regard to the operation of the machines and other technical equipment. This section will be helped by at least three people, namely the one handling collection of raw material one person handles the process of fermentation in the box to finish, and one person handle laundering, drying to dry, and packing up ready for sale. Based on that so the design of the organizational structure LEM Welfare already in engineering by adding 1 unit fermentation processing can be seen in the following figure.

So that the structure of simple organizational the pattern of the relationship is direct, so that the organization's activities can be carried out by a mechanism that is flexible and fast. The costs associated with the coordination and control is usually relatively small. Based on the organizational structure that the following described job description of some of the functions associated with the activity of the fermentation processing unit in LEM Welfare as follows:

1. **Fermentation Unit Manager,** in carrying out its duties the manager is directly responsible to the chairman of LEM Welfare in developing its business units, and is responsible for the maintenance and security of all the resources entrusted to it. Further description of the task, namely: (1) prepare a business plan (2) outlines the sale become the plan of the purchase or raw material requirements ; (3) Prepare recruitment plan and training programs; (4) Creating a market development plan; (4) Creating a market development plan; (5) Preparation of financial statements and other reports in a timely manner (6) Make accountability report month on its performance; (7) The determination of the magnitude of compensation of employees; (8) The application of the rules and discipline of the employee's performance; (9) To organize
production activities began from production planning, supervising and determining corrective action if targets are not achieved production (quantity, quality, time of delivery); (10) Monitoring the production and marketing

2. **Supervisors**, in carrying out its duties, the Supervisor is responsible to the Unit Manager. Supervisor job description are: (1) regulate the process of production, regulate the flow of the process and the flow of materials to take place optimally in accordance with the quality is in need of customers; (2) Overseeing the production process-based security, neatness and safety; and (3) Perform other duties assigned by superiors

3. **Logistics**, in carrying out its duties, the logistics section is responsible to the Supervisor Fermentation. Description of main tasks are 1) Make a recording of receipts from raw materials fermentation, (fruit/wet cocoa beans) from farmer members, or prospective members, either the name of the owner, the amount (2) To coordinate with the quality parts, to check the quality of seeds that farmers submitted; (3) Determine the agreed price based on the quality of the goods sold; (4) Submit items to the operation section for fermentation; 4) Submit items to the operation section for fermentation; (5) Make a recording of expenditures (cocoa beans that have been fermented), a good number, value, buyers, and the destination; (6) Provide outstanding service to members and prospective members as customers; (7). Presenting information is a violation of the contract; (8) Perform other duties assigned by superiors

4. **Quality**, in carrying out its duties, Quality Controller is responsible for Supervisor fermentation. Main task is (1) Analysis of the quality of physical, chemical, and microbiological of the quality standards and customer demand to cocoa beans received or generated (fermentation); and (2) Perform other duties assigned by superiors

5. **Operators**, in carrying out its duties, Operator is responsible to the Supervisor of fermentation. Main task is to perform specific tasks in the order process, the selection process began production processes raw material to final output.

6. **Maid Operator**, in carrying out its duties, the Helper Operator is responsible to the operator. His job is to help smooth the task of operators in each section of the production in each hamlet.

7. **Supervisor of Administration and Finance**, in carrying out its duties Supervisor Financial Administration and is responsible to the unit manager. Main tasks are: (1) Perform duties correspondence, (2) Making the recording, tabulation of data, records, financial management, and (3) Prepare and account for periodic financial statements

8. **Marketing Supervisor**, in carrying out its duties, marketing supervisor is responsible to the unit manager. Main task are (1) conduct research and data collection situation of market conditions, every product which it is responsible; (2) Formulate and report the results of the market research, in the form of the concept of "Market Plan",(3) Monitor and prepare goods to customers who have contracts fit the desired quality; (4) Searching for customers both locally, nationally, and export; (5) Provide satisfactory service to customers; (6) Perform other duties assigned by superiors

5. **Conclusion**

The quality of cocoa in South Konawe is low, both in terms of grain quality and productivity, resulting in low sale price that is low impact on farmers' income. To be able increase the income of farmers, can be done by improving the quality of encouraging farmers to ferment, because of the added value that can be obtained is higher than in non-fermented cocoa beans. Furthermore, in realizing the processing of cocoa beans fermented in groups through institutional engineering in the form of a professional business organization units within the container LEM Welfare. Organizational Unit formed in intended to facilitate the management of economically, and build a network of partnerships with customers, especially PT. KKI requiring cocoa bean fermentation as much 35,000 tones/year, as well as with other supporting agencies.

Fermentation should be done so that the cocoa beans have a distinctive flavor of chocolate and reduce the bitter taste and astringent. Quality improvement program to be associated with improved cocoa farmer incomes through processing approach adopted institutionally on processing units. Development of cocoa processing unit is a blend of technology selection, preparation of physical infrastructure, preparation of competent human resources and technical and managerial transformation of the mental attitude of all stakeholders in the agro-processing units that originally cultured effort "traditional" culture towards "industrial". The results of this research can serve as guidelines for the proper fermentation of cocoa beans and the right to obtain uniformity, and consistency of good quality and the method of utilization of cocoa beans into a product that is more beneficial to farmers as well as all businesses engaged in the cocoa plantations.

**References**