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D.B. Suryaningrat 

Sri Atmaja, Ifa Puspasari, Rahmat Hidayat, Ario Betha
Juanssilfero, Slamet Riyadi, Huy Bich Nguyen

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Sri Atmaja
Ifa Puspasari
Rahmat Hidayat
Ario Betha Juanssilfero
Slamet Riyadi
Huy Bich Nguyen

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Address :

- Dr Novizar Nazir, Room 206 Faculty Agriculture Technology, Andalas University, Indonesia, Fax +62 751 72772
- Dr Ifa Puspasari, Fuel Cell Institute, Universiti Kebangsaan Malaysia, UKM, Selangor Darul Ehsan, Malaysia.
- Ario Betha Juanssilfero, Research Centre for Biotechnology, Indonesian Institute of Science (LIPI), Jl. Raya Jakarta-Bogor KM46 Cibinong-Bogor, Indonesia 16911 Phone +62 21 8754587 ext 107

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Preface

It is our great pleasure to present the Vol. 4 of the International Journal on Advanced Science, Engineering and Information Technology (IJASEIT). This volume comprises articles which are presented in the 2nd International Conference Sustainable Agriculture, Food and Energy (SAFE 2013) held in Warmadewa University, Denpasar, Bali, Indonesia, 17-19 September 2014. Article submissions came from different countries that cover various topics in science, engineering and sustainability. This volume consists of 199 articles classified into six issues based on their field of study.

We would like to take this opportunity to thank all colleagues who had submitted their articles to the IJASEIT through the committee of the 2nd SAFE 2014. A lot of number of submissions indicates their high trustworthiness to us to publish their current findings and spread to wide academic communities. We also send our appreciation to all reviewers who had dedicated their valuable time and comments to ensure articles significantly contribute to science and technology. In addition, we would like to acknowledge the organizing committee of the 2nd SAFE 2014 for this great collaboration and the Editorial Board who had worked hard to prepare this volume.

We are pleased to inform you that the editorial boards of the journal have been trying to widen the journal indexing to main databases and to receive regular submissions for publication for the forthcoming issues. We are committed to serve a fast publication and provide quick access to the recent articles for academic communities globally.

Finally, we do hope that articles published in this volume might inspire a state of the art research and new findings for the advancement of science, engineering and information technology.

Desember 2014

Sri Atmaja
Ifa Puspasari
Rahmat Hidayat
Ario Betha Juanssilfero
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Huy Bich Nguyen

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Involvement of Government Institutions in Agroindustrial Development: A Case of Fruit Processing Industries in East Java, Indonesia

I. B. Suryaningrat

*Program of Agroindustrial Technology, Faculty of Agricultural Technology, University of Jember, Indonesia
E-mail: suryaningrat2@yahoo.com*

Abstract— The fruit processing enterprises significantly contribute to the economies of Indonesia. The government institutions are expected to solve problems faced by these industries. This study was focused on government institutions which are expected to support the government agroindustrial development programs. Based on a purposive sample survey in six districts in East Java, Indonesia, this research paper illustrates government involvement in supporting agroindustrial development. The study found that for the implementation of various programs most of the Departments give low attention to fruit processing industries. Discontinued programs, unavailability of evaluation standards and limited budget limits the government institutions' assistance to food processing industries. Policies for better government institutions' assistance to processed fruit products development are also proceed in this paper.

Keywords— Government, agroindustry, fruit processing, East Java.

I. INTRODUCTION

In Indonesia, particularly in East Java, most of the processed fruit products are supplied by the small and medium fruit processing enterprises (SMFPEs) and only a few by big enterprises (BFPEs). Both SMFPEs and BFPEs play an important role in generating employment and income, particularly to rural population. These SMFPEs produce many kinds of fruit products like banana figs and chips, jack fruit pasta, jack fruit chips, coconut sugar, fermented coconut water, apple pasta, apple juice, apple chips, fruit jams, dried fruit and canned fruit. Every district has different products depending on the fruit production potential of the area. For agro-processing industries including the SMFPEs, problems arise mostly from use of low process technology, lack of inventory system, inferior packaging of product compounded with marketing problems such as competition in the market, lack of market information and deficient distribution system. Other problems are related to management and capital, followed by problems related to raw material supply such as quality, quantity, and continuity [3]. All these problems are due to an imbalance in agro industrial factors such as raw material, processing, and marketing sub-systems of agro industrial system in Indonesia, revealed that raw materials, capital and basic

infrastructure such as electricity, water and road are major requirement for effective poultry business in the study area and it ranked first position [11].

The government institutions are making efforts to support and develop this sector through many programs, but many SMFPEs feel that the programs were not appropriate to meet the needs. Moreover, though the governments in developing countries are aware of the importance of agroindustry and have dedicated their attention to assist this sector, government resources committed for the promotion and development of this sector are still inadequate.

A. Role of Government Institutions in Agroindustrial System

Salazar [13] emphasized that it is the policy bias that hinders the development of agroindustry. Many of the macro-economic and industrial policies are biased against agroindustry in developing countries. This policy bias can be recognized from the policy in infrastructure and the prices of agriculture input and output. Chee et al. [5] revealed during his study in Malaysia that the government intervention is successful but by no means satisfactory.

Fiscal policies are one of the government's interventions in agro industrial development. The main aim of most fiscal policies is to encourage investment in the food processing business. This can come in various forms like tax duty on capital investment and incentives for manufacturers to move

away from urban, over-populated areas. Another policy is the setting up of cooperatives among farmers to jointly produce and promote quality products, including bulk purchase of raw material [1]. Paterson et al [12] in Theng and Boon [12] stated that external forces which causes small business failures are interest rates, recession, inflation, taxes, competition, and government regulations. Ibrahim and Goodwin [6] in Theng and Boon [12] identified three factors affecting the success or failure of small business as interest rates, taxes, and lack of government assistance.

Jena [7] stated that the most important factor responsible to detract beneficiaries from taking advantage of the inputs and services provided by the government agencies were: inadequate quantity of raw material, no timely products supply, poor of raw material quality, and indifferent attitude of the government officials. In other cases, the role of the government, especially at the regional or local level, promotion, guidance, and bargaining with local business in internal and external network holds a crucial aspect for the development strategy of the small and medium businesses [15]. Mishra [9] stated that besides poor packaging, inadequate publicity, and advertisement, absence of any governmental agency for marketing agro-products is an important factor affecting the development of agro industries. Lim [8] stated that government policies and regulations such as trade and investment promotion, monetary and credit policies and the way they are implemented often impose a penalty on SMEs. Institutional infrastructure is under-developed and government awareness is low in many developing countries. Lack of appropriate institutional support, poor coordination mainly with institutional credit supplies affect agroindustrial development [2]. Smallbone and Welter [14] argued that one of the ways governments can influence small and medium industries development is through its influence on the development of those economic institutions that are a necessary part of a market economy such as the business support infrastructure, banks and other financial intermediaries. In Nigeria, the government had not made explicit policy for small and medium enterprises. Even though industrial policy as contained in the second or third national development plans were government efforts to encourage small scale industries [10]. According to Oji [10] SME policy in the main one is treated as a part of the country' industrial policy.

II. METHODOLOGY

Questions and checklist were focused to review the role of government institutions supporting agro industrial system development through their programs. The questionnaires were filled in during visits, discussions and interviews with key personnel or representatives of the institutions. The questionnaire questioned the perceptions of institutions' officers about agro industrial promotion, understanding the situation of basic agroindustry components (raw material procurement, processing and technology, and marketing), application and priority of programs to support agro industrial development. A variety of question styles were employed including questions requiring open and closed responses and other which used a Likert Scale [4] to obtain attitudinal data. Representative government institution officers were chosen using the purposive sampling method.

A questionnaire was addressed to 42 officers from 10 government institutions in 6 districts in East Java consisting of Banyuwangi, Jember, Lumajang, Probolinggo, Malang and Surabaya.

The relationship among government institutionst with other external factors such as other departments, banks or financial institutions, and universities to support agroindustrial activities including SMFPEs and BFPEs were evaluated. Descriptions and graphs were used to explain the perceptions of institutional officers in agro industrial promotion, understanding of agro industrial situation, application of programs, and priority of programs to support agro industrial development.

III. RESULT AND DISCUSSIONS

A. General perception of Institution Officers

This study reviewed officers' opinions about current status of agroindustries in the study area. Their opinions are shown in Figure 1. In terms of processed fruit industry development in East Java, 24 or 57 per cent of respondents thought it's very important and 18 or 43 per cent of respondents thought it important. This indicated that the institution officers considered that processed fruit products should be given priority, and its development should be supported.

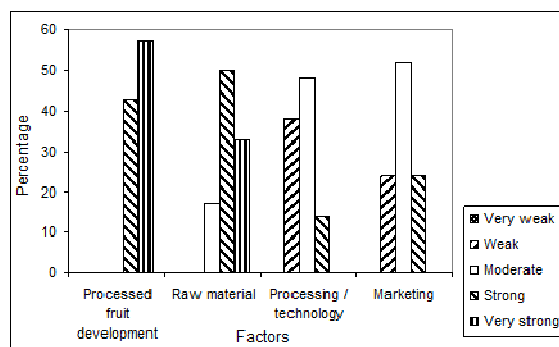


Fig. 1 The officers' opinions about the current status of processed fruit products

Twenty one respondents (50 per cent) gave strong opinion about raw material. This indicated that the raw material is available more than enough to support fruit processing. In terms of processing technology, 50 per cent of respondents stated the existing technology is at moderate level. Thirty eight per cent of respondents agreed majority of fruit processing used traditional technology. Only 6 respondents (14 per cent) answered higher level of mechanized application.

B. Evaluation of institution programs

In this study, government institutions were evaluated based on their activities. These activities reflected application of their programs as service to agroindustries. Figures 2 to 4 show the intensity scale of the institutions based on the activities like visiting, consulting, aid, evaluation and funding. The Likert-scale was classified into 5 levels from very strong level (5) to very weak level (1).

Figure 2 shows that the highest value in the Department of Industrial and Trade was given to aid (4), followed by visits (3.5). This indicates that this department pay more

attention to the SMFPEs by providing aid and visits compared to other industries. The consulting (2.4) was rated close to weak level (2) indicates that this department still has weak role in terms of consultations to solve SMFPEs' problems.

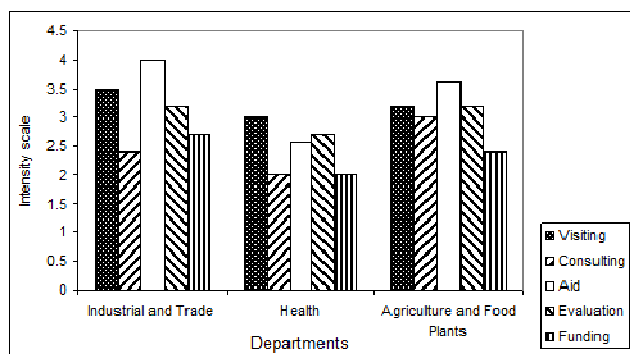


Fig.2 Intensity of program activities by the Department of Industrial and Trade, Department of Health, and the Department of Agricultural and Food Plants

Visiting (3) was rated as moderate level but was the highest value for the Department of Health. It means that this department has the same attention and priority to SMFPEs with other products. Other activities (consulting, aid, evaluation and funding) were rated below 3 or moderate level. This indicates that this department still play a weak role to support SMFPEs development. The role of this department should be improved to support SMFPEs due to direct relationship of this department with the quality control aspects of food processing agroindustries. The study also revealed that aid (3.6) is the highest value for the Department of Agriculture and Food Plants. This activity was rated close to a strong level. This department gave aid package like technical assistance, equipment and extension services. Other three activities (visiting, consulting and evaluation) were rated close to moderate level (3). This indicates that this department gave the same priority or attention with other products to support SMFPEs development.

Figure 3 shows the intensity level of programs by the Department of Environmental Control, Agricultural Technology Studies and Cooperation. The study revealed that visiting (2.5) is the highest rating by the Department of Environmental Control. But this value was rated below moderate level. Other four activities (consulting, aid, evaluation and funding) were rated at low level as valued by 2. It indicated that this department plays a low role and give low attention to support SMFPEs development. Rare extension programs, discontinued and non-availability of evaluation standards, limited budget are the crucial problems in these institutions.

In terms of Agricultural Technology (Figure 3), visiting (3.5) was rated to be at strong level (4). It indicates that this institution frequently visited SMFPEs to find the real problems faced by SMFPEs. On the other hand, consulting was rated below moderate level (2.5) indicated that the visiting from SMFPEs to discuss the solutions to problems was still low. The study also revealed that all of activities in cooperation (Figure 3) were rated below moderate to low

level (valued by 2). It indicates that this institution still pay a low attention to the SMFPEs compared to other products.

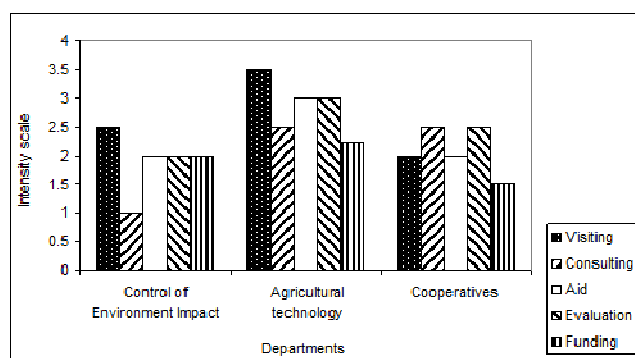


Fig. 3 Intensity of program activities by the Department of Control of Environment Impact, Agricultural Technology and Research Agency and Cooperative.

Figure 4 shows the program application activities of Bank BRI, Planning and Development in district office and provincial office, and Research and Development Agency. This study revealed the evaluation by Bank is the highest value (3), which can be rated as moderate level. This indicates that the Bank gave the same attention and priority with other products to SMFPEs especially for the credit program. For other activities, Bank and other institutions rated below moderate to low level (2). This indicates that these institutions still play a weak role and low attention to support processed fruit development.

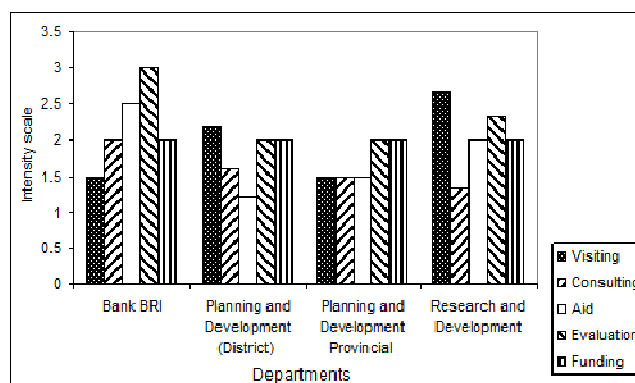


Fig. 4 Intensity of program activities by the Bank, Plan and Development Agency at District and Provincial, and Research and Development Agency at District and Provincial.

C. Evaluation of Institutions Network to Support Fruit Processing Industries

The study evaluated the relationships among government institutions as an external factor for fruit processing industry development in the whole agroindustrial system. The diagram shows the current institutional network, relationship among institutions, role of institution related to basic components, weaknesses of their relationship and the application of regulations. Three weaknesses of the relationship are coded by number 1, 2, and 3. Number 1 means weakness or non availability of fruit processing programs, number 2 means weakness of application of the regulations, and number 3 means weakness of coordination among the institutions.

The study revealed that most institutions had a few supporting programs to encourage fruit processing industry development. The Department of Health and the Department of Control of Environmental had weakness to apply the regulations. Department of Agriculture and Food Plants, Bank, Department of Control of Environment Impact and Agricultural Technology Agency had weak coordination with the Department of Industrial and Trade.

Figure 6 shows the suggested network to improve institutions' role in supporting fruit processing development. This suggested networks are coded as A, B, and C. A means providing a joint program (double line) for better coordination in fruit processing products. B means providing fruit processing programs for the institutions. C means improving and continuing for better programs.

In suggested network of government institution, some institutions like the Department of Agriculture, Department of Health, Bank and Agricultural Technology Agency should provide joint programs with the Department of Industrial and Trade for strengthening coordination among institutions. Establishment of cooperatives and associations are urgently required to support this joint programs. These institutions supported by the Research and Developing Agency and Universities are also suggested to provide special programs to pay more attention in fruit processing industry development.

Table 1 shows that the Department of Agriculture and the Department of Industry should be a control institutions for the raw material procurement. Cooperative or associations of raw material supplier and the Department of Health will support these institutions. It is suggested to provide quality control, delivery system and transportation facilities.

In relation to processing activities the Department of Industry still has an important role to play as a control system. Several institutions support this role are the Department of Health, Agricultural Technology Agency, Bank, and the Department of Control of Environment Impact. Cooperative programs concerning the quality control of product and stronger regulation was suggested. As a support institution, Bank was suggested to implement sufficient credit with soft interest rates to support fruit processing industries. The Department of Control of Environment was suggested to improve the role through stronger regulation in waste management and plan location.

In case of marketing, the Department of Health and Cooperatives or associations will support the Department of Industrial as a center of institutions' control. The Department of Health is expected to improve its role in applying stronger regulation to control the market. The Department of Cooperative is suggested to establish marketing associations, to find new markets, and to provide showrooms of processed fruit products.

In supporting global system, the Plan and Development Agency is the most important institution to control other institutions. The Research and Development Agency as well as Universities will support these institutions. In general, processed fruit products are of a strong priority in this study area. Clear programs, good coordination, joint research with universities and research institutions and sufficient budget allocations are urgently required for better integration of the

government institutions to support fruit processing development.

D. Recommendations and Proposed Policies for SMFPEs and BFPEs Development

In terms of procurement of raw material for SMFPEs, the recommended activities are improvement of the market facilities including storage system, providing better transportation facilities such as vehicles and roads, and improving availability of quantity and continuity of the raw material. Proposed policy relate to raw material activities are improving market facilities, implementing commercial farming system to the farmer through training programs, providing soft credits to the farmers and SMFPEs, and improvement of quality control through training programs. For the daily market activities, suggested programs include providing central fruit market, establishing supplier organization, and establishing marketing net work. The government institutions with strong role to play are the Plan and Development Agency mainly in districts, the Department of Agriculture and Food Crop, the Department of Industrial and Trade, the Department of Health, Financial Institutions like Banks, and institutions like market cooperative and Agricultural and Horticultural Products Association.

Recommended programs for the improvement at the processing stage of SMFPIs are improving the quality of product, providing higher technology, increasing capital investment, improving skills of operators, implementing better control activities like scheduling and inventory system, and improved management skills. Policy should be formed for providing low interest loans or special packages for capital investment, training programs for quality and management skills improvement, and providing simple, multifunctional and low priced technology. For implementation of these policies, financial institutions like Banks, the Department of Industrial and Trade, the Department of Health, and Agricultural Research and Application Agency must play a strong role. Especially, universities as research and development institutes should provide technical assistance or training programs to SMFPEs.

In case or marketing of SMFPEs, recommended programs to achieve better performance through providing better handling and transportation facilities, improving product appearance, and improving packaging quality. Improvement of marketing skills, improvement of marketing network or market channels, increasing the frequency of promotion activities, and establishing processed fruit producers' organization are the other factors with a close relationship to external factors are also recommended. Policies to support this should include providing better transportation facilities to prevent defective products, soft loan programs for vehicles and training program in marketing skills. Facilitating market information and networking among districts, providing promotional facilities and encouraging establishing producer association should be handled by the government institutions.

The important institutions with strong involvement in these proposed programs are the Plan and Development Agency, the Department of Industrial and Trade, the

Department of Health, financial institutions like Banks, and Market Cooperation, Cooperatives, producer (industries) organization and Department of Industrial and Trade.

For BFPEs, the activities related to the procurement of raw material, should include improved storage system, better handling and transportation, make available raw material, supply market information, and maintain raw material quality control. Policy implications will be improving market facilities, providing commercial and contract farming system, providing soft credit for farmers, and providing central market for fruit products. Related to external activities, other policy implications are establishing supplier organization, providing marketing network, and improving role of established supplier organizations. Making available networking marketing among districts will improve the role of the central market. Important institution and organization involved in raw material aspect are the Plan and Development Agency (Districts and Province), the Department of Agriculture and food Crop, the Department of Industrial and Trade, the Department of Health, financial institution like Bank, Market Cooperative, as well as Agricultural and Horticultural Product Association.

Suggested programs of processing activities for BFPEs are increasing capital investment for higher technology and improving raw material quality control to maintain finished product quality. Policy implications to obtain better performance in BFPEs are providing special loans for capital investment to upgrade higher technology, providing training programs for quality control and raw material handling. Involved institutions in these policies are financial institutions like Banks, Department of Industrial and Trade, and Department of Health. Long term and low interest loans from Bank provided to BFPEs. The role Department of Industrial and Trade and Department of Health are strongly required in quality control activities for consumer quality assurance.

For marketing, recommended programs for BFPEs include providing better handling and transport facilities to reduce defective products, improving product appearance like color and taste, continuing packaging quality control, improving marketing network or marketing channel, and of promotional activities. Policy implication better performance of BFPEs are facilitating better vehicles supported by soft loan or low interest from Banks, facilitating market information and networking programs and help for promotion. The Department of Industrial and Trade and the Plan Development Agency are important institutions to promote processed fruit products through exhibitions.

IV. CONCLUSIONS

Considering its impact on local economy, this study revealed that the government institutions considering fruit processing industries should give priority for its development. Most of the respondent revealed that majority

of fruit processing units used traditional technology. For implementation of various programs most of the Departments give low attention to fruit processing industries. Discontinued programs, unavailability of evaluation standards and limited budget are the major constraints faced by the government institutions. A very few joint programs, weak regulations and lack of coordination are crucial problems noted for the government involvement in fruit processing industries. Strong involvement of the government institutions in general to continue agroindustry development programs, increasing budget to support them, improving interrelation and integrating government role are urgently required for the improvement of fruit processing industries in East Java, Indonesia.

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