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Empowerment of Upstream-Downstream Human Resources As an Efforts to Increase Tapioca Industry Results to Minimize Tapioca Import

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Abstract

Empowerment of upstream-downstream human resources is a concrete effort made to realize increased production of cassava and tapioca. Where efforts are made is optimization of human resources through information facilitating integrated empowerment of upstream-downstream human resources as social capital and supported by ways to increase cassava and tapioca production in a structured manner so as to make production yields increase. How can the empowerment of upstream-downstream human resources improve the tapioca industry. Adhering to the principles of empowering Human Resources (HR), namely: developing the potential of the community; developing community cooperation; explore community contributions; establish partnerships; and decentralized (independent). The aspects emphasized in this study include access to information, participation, interest / interest, post-harvest processing, and association formation. The application of science and technology to the experimental plot using double row method. the application of science and technology to the pilot plot using cassava cassava seedlings (uj5) in Pati Districts.

Keywords: empowerment, import, industry, tapioca, upstream downstream.

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1. Introduction

The need for food resources and technology is increasingly complex, this condition requires humans to improve the intelligence of science and technology skills. In the agricultural sector requires readiness for structural transformation which places comparative and competitive advantages in the cassava agricultural sector as a provider of raw materials for the tapioca industrial sector needs to be optimized. This is aimed at achieving welfare prospects that can support acceleration in realizing food self-sufficiency. Through the integrated empowerment of upstream and downstream human resources.

Human resource empowerment is carried out to increase production volume and quality and work productivity. Other conceptual studies on empowerment present many indicators of empowerment. Four of them involve the degree of empowerment, namely the level of awareness and desire to change, the level of ability to increase capacity to gain access, the level of ability to face obstacles, the level of collaboration and solidarity (Soeharto, 2008; Deswimar, 2014; Asfi, 2015; Banowati, et al., 2018)

Facilitating integrated empowerment of upstream-downstream human resources as social capital (MS) in the revitalization of cassava flour industry in its development in this study includes tapioca flour and mocaf. Facilitation of empowerment, referring to the opinion of Hasbullah (2006) and Riadi (2018) that each sub-system of actual and virtual resources that is deliberately facilitated, is integrated as a form of institutionalized social obligation. Furthermore one of the 6 MSs has the function of building community participation (Riadi, 2018). The type of MS that fits the characteristics of this study by Woolcock (2001) is called the Social Bridge (Social bridging). Social bridging is a social bond that arises as a reaction to various characteristics of the group. Its emergence was due to various kinds of weaknesses around it, so they decided to build strengths from weaknesses. Soil conditions are alkaline where the soil pH is around 8, Plant spacing is approximately 100-120 cm. This distance is the optimal distance for Pati area when harvesting, most farmers sell it to middlemen or directly to the owner of the tapioca industry.

Cassava is a plant that is easy to grow, besides the risk of harvest failure is very small. Unless the plant is damaged due to external factors (other than pests). Even so, production and productivity are low. Cassava farmers as producers who cannot determine market prices. Cassava farming conditions in Indonesia are currently declining, even Indonesia as an agrarian country is now the largest importer of tapioca flour in the world, whereas the Indonesian Government has targeted cassava farming to increase to 30 million tons by 2025 (Government Regulation No.5 / 2006).

One strategy is to increase the quantity and quality of cassava through empowerment. Upstream human resources to educate farmers to apply science and technology as a vehicle for direct learning practice. As a result of Darwis's research, et al. (2009) the problem faced in the development of Indonesian cassava is the low application of technology that affects production and productivity. As well as downstream HR, namely cassava flour producers (tapioca and mocaf). Both of these human resources are social capital that need coordination facilitation because each of them is a sub-system of integration. (Banowati, et al., 2017; 2018).

Tapioca Industry has the potential to be developed, because it has a very broad market share in national and international markets. Domestically, tapioca demand has increased by 10% per year, while foreign market demand has reached 221,403,857 kg. The tapioca industry in Indonesia is divided into two scales, namely large and small-medium (Deptan, 2006; Wijana, 2011). According to (Daryanto, 2004; Banowati, et al., 2017; 2018) tapioca is a competitive sector supported by the availability of the cassava comparative sector with the Location Quotient (LQ) value of 0.96, so that the existence is expected to be able to meet the regional needs not for export to the outside area. However, the economic activities of this activity are able to serve both the domestic market and outside markets (Syafiudin, 2013; Banowati, et al., 2017). The policy of facilitating the establishment of tapioca industry encouraged local producers to be interested in import substitution and supported by local resources, namely cassava sweet potatoes. Farmers sell cassava systems for porto land because they get money quickly without having to provide harvesters or fleets to transport.

2. Research Methods

Surveillance and action research were carried out in Pati Regency. Two approaches are used, namely: quantitative emphasis on numerical assessment of the phenomenon of food vulnerability and increased production and productivity of the agro-industrial area to accelerate food self-sufficiency. Upstream and downstream human resources influence each other. Qualitative approaches emphasize narrative development or textual descriptions of the phenomenon of upstream-downstream human resource empowerment that need to be integrated as an effort to achieve a common perception in participating in a synergistic positive way to overcome food problems. Objects of research include: facilitation actions for empowerment and self-reliance of agrarian rural human resources in agro-industrial areas, potential and productivity of cassava and the ability of tapioca industry.

The population in this study are 2, namely: a) population of cassava land area and tapioca center, and b) HR Cassava Farmers and tapioca industry workers. Area cluster sampling technique on cassava land to find out farm data and test accuracy accuracy of image interpretation. Determination of the number of samples using the Geographic Information Agency (BIG) guideline provisions. Simple Random Sampling tapioca industry sampling technique. There are two variables in this study, namely cassava plants and tapioca industry, as well as intervening variables namely

Information

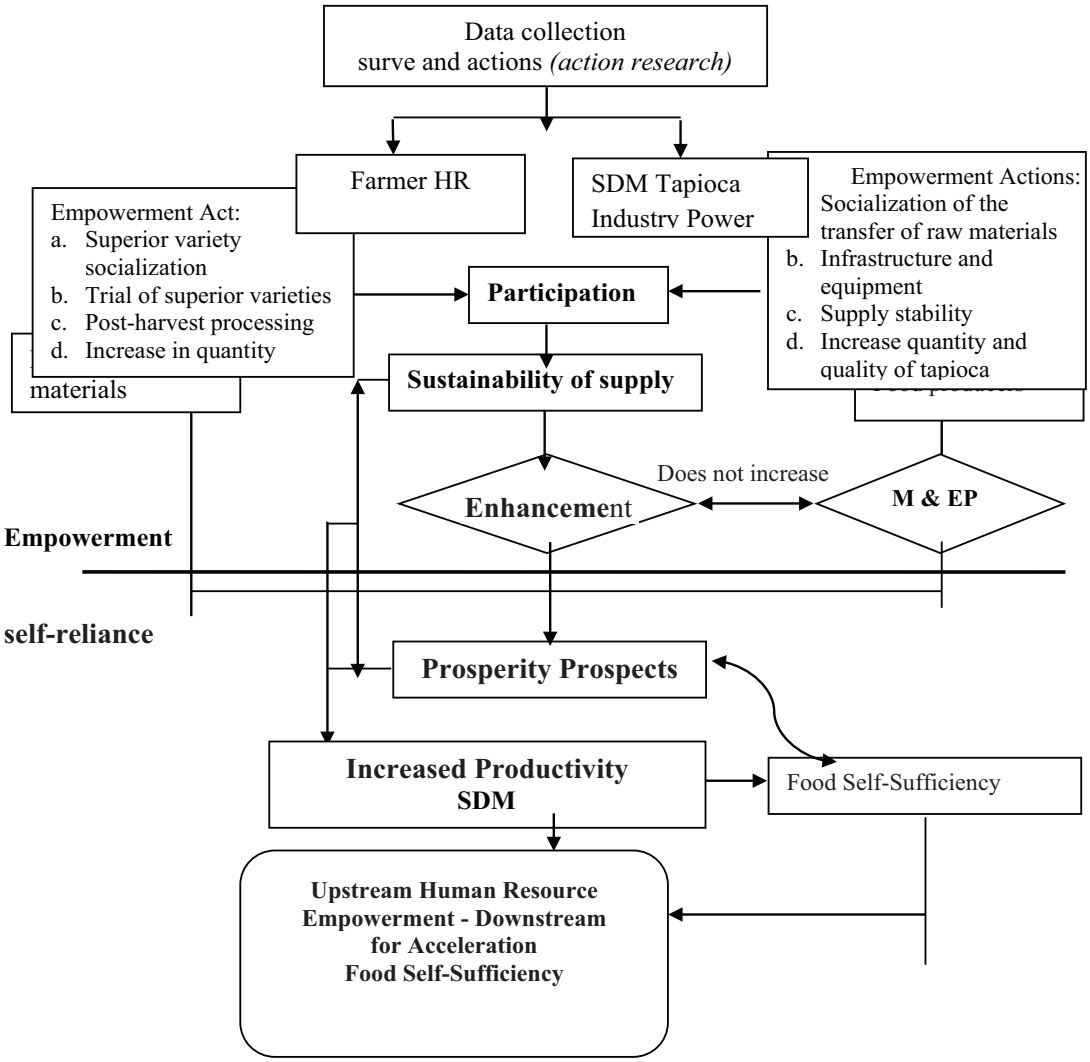

Figure 1: The scheme for implementing revitalization of the tapioca industry.

M & EP = Monitoring and Participatory evaluation

Data Analysis is used Prospective policy analysis synthesizing information to be used in formulating alternatives and policy preferences that are stated comparatively, predicted in quantitative and qualitative languages as the basis for decision making.

3. Discussion

Adhering to the principles of empowering Human Resources (HR), namely: developing the potential of the community; developing community cooperation; explore community contributions; establish partnerships; and decentralization (independent) is described as follows.

3.1. Capacity building in conative behavior

The results of data extraction through training, began with a personal approach to figure farmers, to capture data from empowerment actions that will be carried out, namely the creation of double row demonstration plots for upstream human resources, namely sharecroppers (owners, land tenants and penyakap) totaling 35 people. In this study viewed from 5 aspects, namely: access to information, participation, interest / interest, post-harvest processing, and association formation. Likewise Downstream HR includes: selection of high yielding sweet potatoes, areas of harvest / origin of cassava, orientation of flour types.

1. Information access is very supportive of empowerment activities, with the ease of getting up-to-date knowledge, is very helpful and makes it easier for farmers to get information quickly and precisely both what they want and what farmers should know. Includes: planting method, type selection as presented on.

2. This empowerment is intended to enable cassava farmers to organize and play a role in the advancement of science and technology and market trends that are part of the farming activities that they carry out giving birth to knowledge, skills and skills. The realization of farmers' activities in planning the demonstration plot (demonstration plot) and demonstration (demonstration area) for double row planting method, determining the location, planning the determination of cassava type as raw material for tapioca flour or mocaf. Realization of industrial activities in the planning of production sustainability, determining the market, planning the determination of the type of flour as raw material for food and non-food.

3. Interest / interest is defined as the nature of the tendency or interest in something that is subjective and expectative (expectations) due to various influences from outside of the results of empowerment / views of other parties as points 1) and 2).

4. Processing at the research location, emphasizing the harvest method and harvest time. Ergonomic tools are used for harvesting methods, and harvest time is marked by the growth of leaves has begun to decrease, the color of the leaves begin to turn yellow and many fall off, the age of the plant has reached between 7-14 months (for approximately 8 months). In addition, the loss of yield in gaplek processing is estimated at 12.1% for scattered losses (weight loss) and 6.8% for quality shrinkage. While in the processing of starch (tapioca), the value is 12.2% for scattered shrinkage and 0.4% for quality shrinkage (Purwadaria, 1989 in Ginting,

2002). Cassava is a food that is easily damaged and will rot in 2-5 days (Barrett and Damardjati, 1984, in Sagala, 2017).

5. Formation of associations is a joint forum for cassava farmers and coordinates all potential farmers: the area of cultivated land, production and productivity of cassava farmers. Both local and national scale. For example Indonesian Cassava Society (MSI) and Indonesian Association of Tapioca Flour (ATTI)

Training as a facilitation for empowering education in adding skills is intended to improve knowledge, attitudes, and skills that impact on constructive conative behavior. Conative behavior is a behavior or tendency to do that is related to the motivation or driving factors of a person's behavior that originates from his needs. Recording with observation techniques using visual recording aids (photo cameras), audio visual (video cameras), and field notes.

Indicators of empowerment results based on Table 1 in this study were examined in four interrelated aspects, namely:

1. Input includes: HR, time, training activities, materials, and tools that support community empowerment activities.

2. The process includes: the number of counseling / trainers, the frequency of training carried out, and effective and efficient of the number of upstream and downstream human resources involved.

3. Output includes: the number and types of businesses that are community-based, the number of people who have increased their knowledge and behavior about the products produced, increasing the income generated from the work of each HR element.

4. Outcome of community empowerment has a contribution in reducing: the rate of crop failure / production, failure to sell, and loss and increase the production and productivity of cassava and tapioca.

Knowledge sharing is a process that includes the dissemination of knowledge (Fitrasani, 2009). Document tracking was carried out to obtain data about the documented objective situations and conditions related to production, productivity, and trends from both the upstream and downstream sides. Tapioca flour is a lucrative commodity. Among them for the agrochemical industry such as the manufacture of MSG, then the food industry, the chemical industry, among others, the cosmetic industry, and used by the wood industry.

Table 1: Integrated Upstream-Downstream Empowerment for Capability Development.

Domain	Kognitif →				Afektif →			Psikomotor →		Konatif	
Upstream Element	C1 –C4				S	N	Ts	T	Tt	Mt	Mn
Information Access	12	12	7	4	8	27	0	1	34	24	11
Participation of upstream human resources	0	16	9	10	16	19	0	35	0	25	10
Interest / Interest	0	0	26	9	30	3	2	35	0	27	8
Processing	0	0	35	0	0	35	0	35	0	0	35
Formation of associations	33	0	0	2	35	0	0	1	34	24	11
Total %	25,71	16	44	14,29	50,86	48	1,14	61,14	38,86	57,14	42,86
Domain	Kognitif →				Afektif →			Psikomotor →		Konatif →	
Upstream Element	C3 –C6				S	N	Ts	T	Tt	Mt	Mn
Information Access	0	0	0	19	19	0	0	17	2	2	17
Participation of upstream human resources	0	0	0	19	3	16	0	3	16	16	3
Interest / Interest	0	0	4	15	19	0	0	19	0	0	19
Processing	0	0	13	6	19	0	0	19	0	0	19
Formation of associations	0	0	18	1	19	0	0	19	0	19	0
Total %	0	0	36,84	63,16	83,16	16,84	0	81,05	18,95	38,95	61,05
Source: Primary Data Analysis, 2018											

Information:

C1 :	Knowledge	S :	Agree
C2 :	Understand	N :	Netral / no answer
C3 :	Aplicating	Ts :	Disagree / refuse
C4 :	Analyze	T :	Skilled
C5 :	Evaluation	Tt :	Unskilled
C6 :	Creation	Mt :	Refuse
		Mn :	Receive

Application of Science and Technology on Plot Experiments How to Plant Double Rows (Double Row)

The application of science and technology in this study was conducted in Tayu-Pati District. The experiment was used as a scientific method in empirical data collection of cassava farmers' HR development processes. As a basis for determining the attitude / policy through extracting the ability, creativity, competence and the right mind and

action, especially as a learning media. Empowerment material is one of the cultivation techniques that can be a solution to increase the productivity of cassava with the use of double row planting systems. Quantitative experiment with one treatment (single) to estimate the difference between double row cropping patterns compared to the single pattern in the plot of land in increasing the production of cassava UJ-5 variety (Cassesart) according to Radjit and Prasetiaswati (2011) this type with starch content 23, 27%, while according to Lampung Research and Development it reaches around 45-60%. The climate in the tropical Am Pati regency (tropical monsoon = climate with only a short dry season) based on the Köppen-Geiger system. The average temperature is 27.1 ° C and the average precipitation is 1,876 mm. The initial planting on the experimental plot was planned in July, but the dry season coincided and coincided with the 'harvest' period of cassava. Concentration of the population on harvesting and selling. Considering the rainfall data of Pati Regency, it was agreed to plant in the pilot plot in early October 2018. Assuming the age (cycle) of cassava or harvested after 11 months, continued processing of 1-month soil, the next planting time remained at the beginning of the rainy season.

This experiment simultaneously implements the experience of the Wonogiri MPA (2016) that is a surplus cassava food commodity due to climate change in this decade. In Wonogiri District, farmers planted Cimanggu cassava. Although the size of cassava is small, the diameter of the stem is 4-5 cm. This type of cassava has a sweet taste, is non-toxic, easy to peel, the meat is tender and crispy, and has high starch content. Residents use this cassava for a variety of processed food that is traded, or sold to mocaf flour producers.

The experimental procedure is simple as well as the general planting technique commonly practiced by farmers. Especially treatment in the critical period, namely the day after planting (HST) must be free from plants disturbing wild plants, generally the roots of the previous crop. Minimization of experimental equipment (experimental error) attempted local environmental control, namely environmental conditions that have the potential to affect the response of the treatment, namely: the position of the plot, the location of the experimental plot with a balanced physical condition (homogeneous) with a Completely Randomized Design (CRD). The experimental plot as a realization of improvements to planting methods on land that has been repeatedly used as cassava land.

This experimental demonstration plot was designed or as a planned process as a learning media or strengthening the capacity of cassava farmers, in this study there were 35 sharecroppers (landowners and land leases) with a total arable land of 65.04 hectares. Farmers as individuals and groups in a total environment, assuming that the

activity process of farming is 1 hectare, labor requirements include: land preparation (tractor 2 people = 20 OK), planting (14 OK), fertilization (15 OK), weeding (30 OK), and 15 OK harvesters Involvement of the number of workers can portray their functions effectively, efficiently and sustainably as cassava producers. Manufacturers that produce the quantity and quality of cassava that can periodically (according to the cycle) supply to the tapioca industry. This condition is carried out through continuous learning according to the dynamics of new findings by accepting the variant of UJ-5 and the new planting method they have done. The outcome of this activity is the ability of upstream human resources (cassava farmers) to produce cassava as an adequate quantity of food and a sustainable harvest.

The linkages are efforts to empower upstream-downstream human resources by increasing the production of cassava and tapioca to minimize the import of cassava and tapioca. With the support of increasing the amount of cassava and tapioca production in Pati Regency, it is expected to support the Indonesian government in meeting the needs of domestic tapioca consumption, so that at least the Indonesian government can reduce the import of cassava and tapioca. This supports the Indonesian government's program to realize food self-sufficiency. In addition, government spending on imports is reduced.

4. Cover

Empowerment of upstream-downstream human resources is a concrete effort made to realize increased production of cassava and tapioca. Where efforts are made is optimization of human resources through information facilitating integrated empowerment of upstream-downstream human resources as social capital and supported by ways to increase cassava and tapioca production in a structured manner so as to make production yields increase. The facilitation results of empowerment as an effort to get the farmers and the flour industry to get marketing guarantees, it is necessary to carry out a cooperation agreement between cassava farmers and businessmen (tapioca and mocaf industries). Prospective policy analysis in determining the reference price of cassava sales, according to the Ministry of Agriculture and Trade there are three scenarios related to the plan to determine the reference price of cassava.

Suggestions for the general public are expected to be motivated to improve human resource empowerment especially for farmers so that they intensify agricultural productivity. Suggestions for the government are expected to provide socialization on how

to increase cassava production, especially for cassava farmers in Pati Regency as the main supplier of tapioca industry in this district.

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