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Optimization of Cassava-Based Non Rice Food Development Using Funds Stimulation of *Qardhul-Hasan* Transactions

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ABSTRACT
This research activity was done holistically from beginning to end, starting from 3rd Level of Readiness Technology (TKT + 3) to downstream dominance level. The research objective was to optimize the implementation of Social Engineering Copyright (RS-JGTS) and implementation of TTG-Ts+ in order to realize an independent and sustainable cassava-based food fulfilment center. It used Participatory Action Research (PAR) method to facilitate and motivate the community (producer farmers) to create self-sufficiency food. The strategy to conduct action research was based on O'Brien (2002). The supporting facilities for nutritional analysis in TS + morphology were from the laboratory of life sciences center (LSIH) and simulation analysis. The research results showed that upstream aspects:the implementationof Social Engineering Copyright Cassava Planting Movement Group-(JGTS) in sustainable cassava farming business as a mediumto develop sustainability of cassava raw materials was done with *qardhul-hasan* transactions facility for costs production through partnership with producers farmers through stimulant fund of *qardhul-hasan* for production cost with share instalment was done through agreement of cassava; downstream aspect; the implementation of copyright appropriate technology for cassava flour PLUS (TTG Ts +), to realize processed products of dry cassava, cassava flour and mocaf flour. The next was the agreement of cassava-based fast food creation for cassava noodles, *onde-onde*, and others. The technological readiness (TKT) was at 3-4 level, therefore it need further research in order to increase TKT at a higher level to becomes more optimal.

Keywords: cassava, dry cassava, cassava flour, mocaf,*qardhul-hasan*.

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INTRODUCTION

The previous research result of Masyhuri et al. (2017) was still not optimal. Optimization can be done through empowerment of two output of the research results, including Social Engineering Copyright'Cassava Planting Movement group' (RS-JGTS) withregistered number of 085718 and Appropriate Technology for Cassava Flour PLUS (TTG-Ts+) with registered number of 085478. This research was done holistically from

upstream to downstream in a sustainable manner. The copyright was donefrom 3rdLevel of Technology Readiness (TKT + 3) toward downstream domination. The research result of Masyhuri, et al from 2008 to 2017 should be revitalized to make future research had significant effect to socio-economic-technical. The aspects of scientific development (science) and output program can describe the research profile of Masyhuri et al. (2017), but still not show the ideal optimal conditions.

Based on above description, this research will explore the optimal level of ideal implementationof Social Engineering Copyright 'Cassava Planting Movement Group' (RS-JGTS) to create sustainable and the optimal and ideal implementation of Efficient Technology of Cassava Flour PLUS (TTG-Ts +) to realize the self-sufficiency of foodself-sufficiency.

The research objective was optimization the RS-JGTS and TTGTs+ implementation to achieve cassava-based foodself-sufficiency. This independence was measured by the fulfilment of cassava flour and / or mocaf flour with a relatively large and extensive sustainability functions. Cassava flour can be used for food bleach coloring agents, textile industry bleach, thickener in stir, meatball thickener, gatot, pempekpalembang, animal feed, cendol, bubble drinks in malls, ingredients to make various kinds of cakes, and so on. The mocaf flour is made through fermentation; it has more function than cassava flour and can be made as cassava rice.

The urgency of this research is to develop new theories (the assessment of science), solution of strategic problems for local food and implementation of science and technology. The urgency to produces a new theory of social engineering is a representative of basic research of 'revitalization' of cassava-based food, problem-solving in community to create of alternative food diversification from cassava and urgency to implement copyrighted science and technology in order to fulfil independent and sustainable alternative foods. This urgency is very relevant to strategic plan of University of Islam Malang (UNISMA) as outlined in Research Master Plan (RIP) to create food security.

The frontier of UNISMA research for food security was started from strategic research as exploration, advanced exploration and laboratory testing and implementationto early adopters, sustainable adoption to early adopters and links to companies, profit-oriented and to support exports.

The contribution of models development and products from laboratory scale to environmental scale is the technical impact of long-lasting raw materials of dry cassava to create cassava flour to produce bleach coloring agents, textile industry bleach ingredients, thickeners on stir, meatball thickener , gatot, pempekpalembang, animal feed, cendol, bubble drinks in malls, materials to make various kinds of cakes, and mocaf flour can be used more than cassava flour to create cassava rice and to crate economic impact to meet demand for cassava flour and the social impact to adopt sustainable innovation.

The research is very important to support strategic research of UNISMA to make frontier research of food security. This research frontier should optimize the non-rice food development. It can be used as sustainable frontier for departments, faculties and University of Islam Malang. There is consistence between researchers' frontier and UNISMA's development frontier to create food security.

The implementationof Social Engineering Copyright RS-JGTS and TTG-Ts + become forerunner to make action programs. The success of previous research, both at upstream and downstream, has been fulfilled optimal conditions, but still has not reached the optimal ideal condition. The ideal indicator is program output; social engineering can run independently and academic output is the articles can be published in reputable international journals

THEORETICAL REVIEW

RIP of University of Islam Malang (Unisma) 2016-2020 has 4 (four) research namely (i) religious & educational; (ii) natural & environmental resource technology; (iii) social & humanities and (iv) gender. RIP of University of Islam Malang are focused on Unisma's research frontier on food security. The research has been done from various schemes in 2008-2016 as captured in research road map. Excessive cassava was shown in year 2008 in East Java according to BPS data. The reality shows that creative economic actors of cassava-based food businesses have difficulties. It createssocial engineering to plant cassava and program of cassava-based food revitalization until research in 2017.

Incentives are provided with loan funds without interest to support this upstream activity. This was done by sharia transactions implementation in form of *qardhul-hasan.* This transaction promotes virtue to target groups of producer farmers. Optimization of upstream activities will be realized with a measure of rate of return of fresh cassava with a return value equal to amount of loan at current cassava price.

Cassava downstream management was done to make cassava flour with high nutrition accompanied by creation of flour cassava as the raw material. This was done to synchronize the social engineering and appropriate production technology in order to realize the Institutional research frontier (Unisma).

This research novelty is the implementation of copyrighted RS-JGTS and TTG Ts + in particular research sites and / or expansion in other locations. The independence of target group is done through a partnership with CV.Wijaya Food and CV.P3L. This research innovation is independence through two aspects. The measurement of target group independence is the ability to do upstream-downstream activities in accordance with existing technology combined with various innovations such as mocaf, cassava rice and cassava waste processing.

Table 1 shows the previous research of Masyhuri et al.from 2008-2017 grouped into periods. Estimation of downstream prospects in implementationof the model can be

done because of market potential support, namely the need for cassava consumption per capita per year based on Central Statistics Bureau of East Java is 8%. Total person consumption per capita per year is 360 kg of rice, then the cassava needs in all target groups are 30 people who act as early adopters and pioneering group get 360 kg of rice per capita per year x 8% cassava needs x 30 equal with 864 kg of rice / year.

Upstream activity of cassava farming shows the estimation per capita production is 100 kg cassava and downstream activities is 60% cassava flour. The production of cassava flour is 60 kg cassava flour / capita.

Table 1: Past Research Performance Matrix, Year 2008-2017.

2008-2011	2012-2015	2016-2017	The Future Proposal
Activities: ○ Optimal cassava distribution. ○ Program of education, training and empowerment to cassava-based creative economic actors	Activities: ○ Sustainability of cassava distribution ○ Post-harvest activities with revitalization of food cassava-based diversification ○ Social engineering of 'Cassava Planting Movement Group 'Cassava Planting Movement Group (RS-JGST) ○ Downstream of nutrient cassava flour (Ts +) as an effective technology (HNMCF)	○ Optimization of RS-JGST (registered in No.085718) and HNMCF through Laboratorium and field test ○ Strengthening the partnerships with CV. Wijaya Food to accept dry cassava ○ CREATION OF COPYRIGHT TS + Number 085478.	Activities: ○ Optimizing the upstream-downstream ○ Down streaming is done through optimization of HKI IPR TTG-Ts + and ○ Down streaming through the optimization of RS-JGST to achieve food independence

The market potential is very large. Malang Regency population is 2,544,315 people and cassava production level of 20 kg / tree and 250 hectares of each plant, then production of 5 tons / ha. Target in 2017 is 100,000 hectares to make production of 500,000 tons (60% cassava conversion = 300,000 tons of cassava flour). The national the need for cassava reaches 80,000 tons / year, but the supply is only 20,000 tons / year. Therefore, business opportunities come from upstream and downstream sides. Commercialization can be done with flour agro-industry with estimated needs of 73,276,272 kg of rice /

capita multiplied by 8% of cassava needs multiplied by 360 kg of minimum rice needs, and then the magnitude of flour conversion needs is 43,965,763.2 kg of cassava flour.

The cassava can be fulfilled from local production if the 100,000 target is reached and opportunity for export is 256,034,236.8 kg of cassava flour / year (85.34% of production target) for Malang district. This condition support the commercialization of cassava flour agro-industry plus (Ts +) towards industrialization business, in form of flour and / or mocaf and crisps to encourage added value to penetrate regional, domestic and international markets if accompanied by good packaging technology. Therefore, this research will further developed and be sustainable and remain consistent in frontier corridor of UNISMA research institutions.

METHODOLOGY

The research locationsareNgenep Village, Karangploso District and Lang-Lang Village, Singosari District. The locationswere selected as the follow-up previous research since 2008-2017. The target groupsare coordinated by Chairman of Farmer Group in form of a partnership in cassava farming (upstream) until cassava waste processing (downstream). The two villages become cassava planting sites because all target groups have dry land and agree to plant cassava without replacing the main crop (corn and sugar cane); there is a center warehouse center to dryand storing the cassava.

The research stages were donein following stages. First is assistance to target groups that had been members in previous years to implement RS-JGTS copyright. Second is preparation to harvest cassava as raw material to process it into flour PLUS (Ts +). Third is to search the cassava farming from each of target groups by analyzing the advantages and disadvantages when implementing cassava farming on side field (*Galengan)* land. The forth is recapitulation of cassava production output as a whole for preparation for cassava flour and dry cassava. Fifth is polling on the implementation of cassava flour process by two CV partners, namely Local Food Development Center (P3L)B/509/PM/XIII/6/NAS/80 and UD Wijaya food. Six is yearly evaluation of the activities.

This research uses method from O'Brien (2001) with following stages. First is planning with regard to real conditions in community (farmers) using SWOT analysis. This analysis involves farmers. Second is action, farmers implement the plan with facilitation from researchers, especially if for cassava flour as a sustainableprocess. Third is observation.Observations will analyze the successes, weaknesses, and shortcomings of strategies and methods used to solve problems in cassava and flour producer farmers. Forth is reflection. The previous efforts are reflected and evaluated, both the weaknesses and success of strategies and methods to solve their problems. This reflection and evaluation leads to a plan again as first point to solve community

problems, both those that have not been completed in first stage or to solve new problems in target groups and farming community.

All stages are done with a Forum Group Discussion (FGD) model to make a consensus. The cassava was planted with 'injection' method after post-harvest processing, besides the Rent model. The independence of target group will be realized when the UNISMA researchers / LPPM have releasedthem after the program is finished. The target group can become independent after being released from LPPM UNISMA. There are three fundamental reasons here, namely the existence of partnership between producers and distributors; science and technology for their needs (target group) and science and technology will not defeat their existence. The analysis method is shown in Table 2.

Table 2: Objective Relevance and Data Analysis Methods

Objectives	Analysis Model
Optimizing the RS-JGTS implementation within framework of sustainable supply of raw materials (cassava)	In-depth descriptive analysis to look the real conditions development of target group while conducting education / training and mentoring to seek mutual agreement.
Optimizing the implementation of appropriate technology of cassava flour PLUS (TTG-Ts +) toward food independence.	Laboratory tests analysis with adjustments through agreement in field implementation.

RESEARCH RESULTS

Efforts to optimize the copyrighted RS-JGST (registered number of 085718) aredone based on agreement. It reflectssocial engineering as interference in manipulating a scientific movement to influence social change. These changes can be either positive or negative, but this study is driven by positive changes. For this reason, plan design has positive changes in farm management, a positive value can be indicated by timely return and exact return is the same as the stimulant fund. The thing that encourages changes in social engineering to encourage farmers to work on cassava is the perception that cassava is a 'bad' (inferior) commodity without value. Max-Weber in Rachmat (2000) said that the causes of social change are way of life, world view, values, attract sympathy and the community. The fund is used as stimulus to make cassava planting movements, this has been responded positively.

The research results show three cause of this change. First, evolution is a form of change that takes a long time, because it involves attitudechanges. However, this can be overcome because cassava has become a daily habit that requires a pattern of accompaniment. Second, revolution is a rapid change and quite popular among the

social movements of cassava farming activities to use marginal land as a second business. Third, reform is a form of gradual and partial change. These three things are used to measure the optimization without serious obstacles, even the results of a poll said 84% were pleased to this model because the 'intervention' of cassava farming management uses stimulant funds without interest (*qardhul-hasan*).

The optimization has been done with farming engineering and partnership with coaching patterns. Suhadi in Masyhuri (1999) said that partners play a role in: (i) increasing the ability of small industry businesses through coaching in managerial, production technology, capital, the provision of raw materials and marketing, and (ii) guarantor of credit to banking institutions. The implementation partnership system makes the *qardhul-hasan*create structural and cultural changes.

Optimization can be achieved with several examinations, including: Agreement with target group. The results show that cassava farming createssocial, economic, health and cultural benefits. The cassava is planted at 'empty' land to avoid the idle land. The social aspect is a sense of desire (addiction). The uses of side field can minimise the rodent'spest. It was showed that by target group that rats will be divertedand the main crop will not damage. Expansion of land usage is not only at side field but also at 'small landslides' (*jougrog*; java). The *juogrog* will be covered by cassava plants and withstand greater erosion. It is recommended that food security can be developed through cassava. The cassava cultivation needs to be done as in this PAR program. The basis to adopt this innovation is an agreement with community and their needs. The land is cultivated for sugar cane, but cassava still provides a pretty good hope - both in social and economic aspects. The cassava do not require high farming costs than sugarcane farming and (ii) the optimization of cassava farming partnerships, a mechanism to uses group with 10 people, each person 'required' to plant a minimum of 100 cassava trees so that there are 1000 trees can be planted at side field besides the main crop. This is done based on a mutual agreement because without cassava cultivation the land rental fee is quite expensive and most likely farmers are reluctant to access it.

The crop patterns ideally should be planted as described, but they get freedom to use the cropping patterns in accordance with experience of each target group farmers. This is based on the research spirit to plantcassava trees at empty land to participate in food security. Historically, this plant has been planted at yards and creating overproduction and the prices are getting lower. This incident continued for years and finally cassava becomes inferior commodity category. Some areas managecassava to make processed food, making this commodity as a staple food.

The classic phenomenon shows the rice and corn-based demands are higherto cause the depletion of rice stocks along with higher population growth. Cassava become alternative commodity and more needed. This higher need cannot be accompanied by adequate production to create a shortage of cassava raw materials. For this reason, action research is one of alternatives to 'cover up' these shortcomings. The results

showed that the use of side field with 100 stems per person from 10 people can fulfil 10% of cassava need from this action research. Data is collected from target groups, including: the habits of subsistence farmers to use rice and corn farming commodities, utilizing their plots with cassava plants as alternative farms. The fundamental reason is the cassava commodity can provide additional income for farmers although few others said it was a commodity that had no 'value'. The cassava production in one-yard plot of land can reach 4-5 kilograms, either in main land or idle land. Small care and fertilization makecassava growth can be felt. They have a perception that eating cassava can treat heartburn so that cassava consumption does not have side effects. Good experience in cassava farming makes them understand the type and characteristics. One characteristics that are understood is that cassava production at yard is good from aspect of appearance (long and round) by forming results in a circle. However, cassava at wet land does not give good harvest and the appearance is not good. There is also a difference in taste aspect. The cassava at yard is still less tasty than cassava from paddy fields that more 'dense' ('*punel*; java'). Therefore, cassava is a commodity that has quite high socioeconomic benefits.

Planting cassava at field side has advantage and disadvantage. The disadvantage is that production will less optimal, there is a tendency of lower harvest, while the advantage is that rat does not eat the main crops, such as rice or corn. This fact avoidsthe main crop (rice) from rat pest. Cassava is a desired plant (*'ngangeni'*:Javanese). It means that do not eatcassava for a long time will create desire because cassava is a commodity in rare category today. This scarcity is happened because farmers do not grow cassava and switch to grow sugar cane commodity. Planting cassava is only a side plant. This program can provide encouragement to plant cassava in order to cover the *'desire*'. The estimated production may not be optimal because it coincides with rainy season.

Cassava can have good production if planted at slightly cracked land (*jugrugan*; Java), onslope / bund (land). Cassava planted at *galengan*diverts the rats attack (‘*keslimuur’*: java), and main crop will not be damaged. The side field (‘*galengan’*) to grow cassava is larger. This makes cassava production quite good with 4-5 kg per tree. This PAR program is quite familiar and immediately adopted because farmers have done the basic idea of this PAR program. Cassava planting program at idle land will create good profits; through the adoption of 300 seeds of cassava because the location of house (stall) is in middle of rice fields. The expansion of cassava farming is not only at dry land but also paddy fields (one acre area (one ‘*calik*; Javanese) are all attempted for the program.

The main reason to participate in this program is to encourage farmers to plant cassava in their paddy fields because at harvest time it will be processed and / or used by themselves for diversification / additional goods sold in rice stalls. Farmers were not pessimistic and disadvantaged and even benefited because his rice fields were planted with crops used for fast-food of cassava. The busy schedule need land management because it is done by others. An area of less than 0.5 hectares does not become a serious obstacle to cultivate cassava because the planting is relatively easier and cheaper than

to rice; access to this program is quite serious, the initial findings after the visitation by researchers showed that farmers proposed funding stimulation through *qardhul-hasan* expansion of 7,000 cassava stems. However, it cannot be fulfilled because the program is running, if the program is successful with a measure of socio-economic improvement, then this expansion may be realized.

Another creative technology to use cassava is cassava flour. Previously cassava can be formed into longitudinal or split logs, flour, or pellets. Dry cassava should dry, white, not mouldy, and no skin left. The cassava packing should goodusing clean burlap sack and strong seams. The benefits of cassava flour are to add content of natural bleach dye, it can also be used in textile industry, thickening the stir-fry because it has clear and thick effect when heated. However, cassava flour has a weakness that not suitable for frying because it absorbs oil and hardens after a cold for a long time. Therefore, it needstechnology to overcome these weaknesses to make cassava flour innovations can be easily accessed, directly produced by community.

Cassava flour is expected to be used as a substitution for sago flour. It should be used as a complementary to producers of meatballs to make chewy. It also can be used by producers of crackers, *cendol*, various kinds of cakes, breads, and so on. Cassava flour can be used as substitution of sago flour in low quality, at least it can be used as a mixture of less than 50% of use of wheat flour. Indonesia has many kinds of flour, namely : (1) wheat flour made from wheat seeds and has a smooth texture, very elastic, high protein content of 11-13% or medium of 8-10% and low protein category range from 6-8 percent, (2) tapioca starch is made from cassava or often also referred to as cassava flour, (3) corn flour is referred as cornstarch (corn maize), (4) glutinous rice flour, (5) bread flour or often referred to as *panir* flour, (6) sago flour, (7) green bean flour (*hunkwe*) made from green bean starch, (8) rice flour, (9) sweet potato flour, and so on.

Cassava flour can made as modified tapioca starch by adding kenikir 31.12%, basil 19.91%, Moringa 35.08% and junggalan 32.31%. The laboratory analysis shows that implementation of appropriate technology (TTG Ts+) still has many weaknesses, and manufacturing process is quite complex and the costs are also relatively high. Thus modifications are generally donewith fermentation process.

Fermentation will increase the potential advantage of this flour because it does not contain gluten. The other advantagecassava is can kill the cancer cell. Hughes research from Newcastle University in (Dwiputri, 2015) shows that Linamarin is modification of genes in cassava plants in order to produce Linamarin that cannot be changed by linamarase enzyme, so that its presence would be very beneficial, especially for healing tumour and cancer. The dry cassava is measured by the water content. The nature of cassava is not durable and easily damaged and fresh cassava can only be stored for 3 days. If stored for more than 3 days, it will become bluish brown. Therefore, after harvesting cassava it should immediately consumed or processed. The cassava can be processed into drycassava, cassava flour or tapioca. The shape of dry cassava can be

designed in according to consumers need, it can be in form of sliced cubes, chopped, and cube shapes and so on. It generally made through two stages, peeling the cassava then washing with clean water and splitting, slicing or chopping the cassava in accordance with custom.

The technology developed in society for dry cassava are follows: (i) the cassava is cut in cubic shape, both manually and / or machines with a range of 1-2 cm; (ii) soaking in an 8% kitchen salt solution (0.8 gram salt in 1 litre of water) for 15 minutes; (iii) drying until the water content reaches 14% using bamboo and plastic mats and plaits, sun-drying mats or flooring and (iv) drying technique is done on free sunlight without control.The process to make dry cassava is based on technology in community. It is good to be continued in form of cassava flour. The cassava is cleaned and then cut into pieces and dried in hot sun during the day. This simple technology does not require a large cost.

The dry cassava can be used to make gatot. It has uniqueness and idiosyncrasy taste, savory and sweet taste as the characteristics besides the chewy structure plus a little rough grated coconut will adds the exoticism when chewing the gatot. Eating gatot can make longer satisfaction because the digestive organ takes a long time to digest gatot. Gatot is no longer identified as village people food. This food has own uniqueness and becomes the main food in formal and non-formal events. The Production process is quite complicated and prone to error. The development of technological advances makes the manufacturing process can be done in various ways and good result. The more and more products are accompanied by better creativity,the marketing model is also done conventionally and on line. This marketing modelinghas form of instant gatot, where the gatot is packagedand ready to be cooked by soaking, then steamed and can be served in various taste.

Dry cassava can be processed into cassava flour. The cassava is cleaned and cut into pieces and dried in hot sun during the day. This simple technology does not require a large cost so that difference between the price of dry cassava and wet cassava is relatively low. This opportunity encourages cassava products to become a mainstay in community because the average price of cassava is IDR. 2,400, IDR. 2,700.The dry cassava processing need four days, beginning from days I, II, III and IV. Total 4,594 kg of wet cassava need 54 women workforce from housewives. At the first day, 12 women involved in production of cassava chips processed 1230 kg, second day there were 12 women with a production of 1,245 kg and third day, there were 13 female workers to produce cassava chips of 1,233 kg. At the fourth day the workforce involved 10 people with production of 886 kg, this was due small shape. The other 6 people consisting of 4 women and two men handle dry the cassava to avoid the damage of small cassava.

The cassava flour can be added with high protein content as kenikir of 31.12%, basil of 19.91%, Moringa of35.08% and kelor of 32.31%through modification (modified tapioca starch). The laboratory analysis shows that implementation of appropriate technology (TTG Ts +) to this flour still has many weaknesses, including the manufacturing process

is quite complicated to make the costs higher. Therefore, modifications are generally doneby fermentation process.

CONCLUSION

Some of findings of post-program research can be explained as follows. First, cassava farming can provide economic benefits because it provides a significant contribution to household life of farmers. Second, cassava farming initially becomessecond business to provide a fairly deep understanding of cassavacharacteristics, which can cure ulcer disease. Third, side field can be planted cassava which previously is planted in dry land and now converted to sugar cane. Forth, sense of awareness that side field usage will avoid waste. Fifth, cassava farming in backyard produces quite good cassava,like a round circle around the cassava stem, but in wetland (rice field) it shows little production and poor appearance; (vi) cassava commodity brings socio-economic benefits through intercropping of basyiah wood and planting 'loong' cassava seeds among basyiah plants. They get benefit from social and economic aspects. Expansion is not only on 'bunds' but at land in 'small landslides' (*juogrog*; java) because juogrog will be covered by cassava plants as well as withstand greater erosion. This fact can be transmitted to other farmers who have slope land and potential for landslides, therefore the effort to minimize landslides can be done by planting trees and cassava to resist erosion.

Optimizing the implementation of appropriate technology (TTG-Ts +) has output to get copyright number of 085478 for TTG-Ts +. TTG-Ts +in community is used as a foothold in empowerment of these commodities, because the technology they have with this program will complement each other will not shift the existing technology to community. Even the existence of this program makes it more complete in long term, community will be more independent.

REFERENCES

Biro Pusat Statistik. 2010. *Kabupaten Malang Dalam Angka*. Malang.

Brien, R.O. 2002. *An overview of the Methodological Approach of Action Research*. Available from: http: // www. Web.Net/~robrien/ papers/ arfinal.html.

Dwiputri, N. 2015. Tinjauan Pustaka. *Eprints.polsri.ac.id*

Jalaluddin, R. 2000. *Rekayasa Sosial Reformasi, Revolusi, atau Manusia Besar*. Bandung: PT.Remaja Rosda karya

Masyhuri, M., Nikmatul, K., Sri, H.. 2018. Pelatihan Penanaman Prilaku Konsumsi Singkong Dan Responsi Masyarakat. *Jurnal Inovasi Hasil pengabdian masyarakat*. Vol 1. No2. Pp. 119-128

-------. 1999. *Pemberdayaan Masyarakat Pedesaan pada Industrialisasi Pedesaan sebagai Upaya Menanggulangi Kemiskinan dalam Rangka Menghadapi Era Globalisasi.* PHB. DIKTI:No.044/P2lPT/HB/VII-2/1999. (tahun I dan II).

-------. 2000. *Usaha Pembentukan "koperasi Tani" pada Masyarakat Pedesaan Guna Menuju Masyarakat Mandiri sebagai Sarana untuk Pemberdayaan Usahatani PALAGUNG*. PDM, DIKTI. No.089/P2lPT/DM/VI/2000.

-------.2002. *Analisis Perencanaan Sumberdaya Pertanian Yang Optimal.Disertasi S-3*. Surabaya: Program Studi Ilmu Ekonomi Pembangunan PPS UNAIR Surabaya.

-------. 2003. *Studi Potensi Wilayah Poncokusumo Untuk AGRO ECO TURISM Dari Aspek Prasarana dan Produk Unggulan Wilayah*. BALITBANG Kab. Malang. Nomor SPK/SPMK: 074/282/ KEP/421.203/2003.

-------. 2007. *Model Pengembangan Sektor Pariwisata Alam (Agro Eco Tourism)*. AGRITEK – ISSN 0852 5426. HALAMAN 960-969.(terkareditasi nasional)

--------. 2008. *Analisis Deskripsi Permintaan Dan Penawaran Sektor Pariwisata Dan Lingkungan*. *AGRITEK*ISSN 0852-5426 , Pp. 197-202.(edisi khusus, terkareditasi nasional)

----------. 2008. *Optimalisasi Distribusi Singkong yang Berimbang (balance) Guna Mendukung Ketahanan Pangan.* PHB: DP2M Ditjen Dikti Depdiknas, No Kontrak: 231/SP2H/PP/DP2M/III/2008. Tgl. 6 Maret 2008 (tahunI)

---------. 2010. *Optimalisasi Distribusi Singkong yang Berimbang (balance) Guna Mendukung Ketahanan Pangan*. Dibiayai DP2M Ditjen Dikti Depdiknas. No Kontrak: 110/SP/2H/PP/DP2M/III/2010.

--------. 2011. *Optimalisasi Distribusi Singkong yang Berimbang (balance) Guna Mendukung Ketahanan Pangan*. Dibiayai DP2M Ditjen Dikti Depdiknas. No Kontrak: 0080/SP2H/PP/K7/KL/IV/2011

-------. 2012. *Optimalisasi Distribusi Singkong yang Berimbang (balance) Guna Mendukung Ketahanan Pangan*. Dibiayai DP2M Ditjen Dikti Depdiknas. No Kontrak: 0032/SP2H/PP/K7/KL/II/2012. 9 Pebruari 2012.

-------. 2013. *Model Pemanfaatan Lahan Marginal (Pematang; Galengan) Dan/Atau Lahan Pekarangan Pasca Diberlakukan Distribusi Singkong Yang Optimal Guna Mendukung Peningkatkan Akses Rumah Tangga Tani Pada Cadangan Pangan Yang Berkelanjutan (Sustainable)*. Malang: LPPM Unisma, Laporan Penelitian Stranas. No. Kontrak: SP023.041.673453/2013.(13 September 2013)

-------. 2013. *Model Pemanfaatan Lahan Marginal (Pematang; Galengan) Dan/Atau Lahan Pekarangan Pasca Diberlakukan Distribusi Singkong Yang Optimal Guna Mendukung Peningkatkan Akses Rumah Tangga Tani Pada Cadangan Pangan Yang Berkelanjutan (Sustainable).* Malang: LPPM Unisma, Laporan Penelitian Stranas. Tahun I-No. Kontrak: SP023.041.673453/2013.(13 September 2013)

-------. 2014. *Model Pemanfaatan Lahan Marginal (Pematang; Galengan) Dan/Atau Lahan Pekarangan Pasca Diberlakukan Distribusi Singkong Yang Optimal Guna Mendukung Peningkatkan Akses Rumah Tangga Tani Pada Cadangan Pangan Yang Berkelanjutan (Sustainable).* Malang: LPPM Unisma, Laporan Penelitian Stranas. Tahun II-No.Kontrak: 016/SP2H/P/KM7/2014 tanggal 3 April 2014.

--------. 2015. *International Journal **of** Applied Enggineering Research* (IJAER). ISSN 0973-4562.Vol.10, number 19,2015. RIP (Research India Publication) http://www. ripublication.com. (pp 40068-40072).

--------. 2015. Cassava Peel Waste-Eat Jawa Case: Potensial Utilization Of Cassava Peel For Feed And Bioethanol. Tokyo, Jepang. 5 – 6 Agustus 2015. *kegiatan seminar ke Nihon Tokyo Jepang tentang Water and Environmental Technologi Conference (WET2015*).

--------. 2015.*Optimalisasi Pengembangan Pangan Non Beras*. No.Kontrak: 018/SP2H/P/k7/KM/2015.2 April 2015. Stranas Tahunke-1.

--------. 2015. *Optimalization Of Cassava Distribution And Marginal Area Usage For Supporting Food Endurance.*International journal of Applied Engineering Research Editor-in-Chief. Prof.Ir.Dr.Mohd Sapuan Salit. *RIP Reseacrh India Publications*http://www.Ripublication.com. VOL.10 (1).ISS 0973-4562.

--------. 2016. Diversification of Snacks Food Basedon Cassava (*Manihot Esculenta*). 'Seminar on ASEAN Community Based Tourism 2016' di *The First Academic Seminar about ASEAN Community Based Tourism at Phuket at the Dawn of the ASEAN Economic Community (AEC), Prince of Sonkla University (PSU)*. Phuket-Thailand, padatanggal18-20 Juli 2016.

--------. 2016. *Optimalisasi Pengembangan Pangan Non Beras.* No.Kontrak: 020/SP2H/P/K7/KM/2016.Penelitian Stranas. Tahun ke-2.

--------. 2016. *Ekonomi Singkong*. Malang: Media Sutra Atiga. ISBN: 978-602-74882-8-1.

--------. 2017. *Ekonomi Gaplek*. Malang: IRDH (*research and publishing*). ISBN: 978-602-6672-34-6.Anggota IKAPI.

---------. 2017. *Optimalisasi Pengembangan Pangan Non Beras*. No kontrak 022/SP2H/K2KM/2017. Penelitian Stranas laporan th-3.

--------. 2018. *Ekonomi Mikro Islam*. Malang: IRDH (*research and publishing*). ISBN:978-602-6672-60-5.Anggota IKAPI.

--------. 2018. *Matematika Ekonomi.* Malang:Media Nusa Creative (MNC). 978-602-462-093-6.EDISI REVISI.Anggota IKAPI.

--------. 2018. *kewira-USAHA-an berbasis makanan lokal terintegrasi dengan bisnis "ala" Rasulullah SAW*. Malang: Media Nusa Creative.ISBN:978-602462-109-4.Anggota IKAPI.

--------. 2019. Empowerment of Small Businesses through The Implementation of Qardhul Hasan Financing.*Journal of Socioeconomics and Development.* Vol 2(2), October 2019, 99 - 106 DOI: 10.31328/jsed.v2i2.1077.(URL:http://publishing-widyagama.ac.id/ejournal-v2/index.php/jsed/article/view/1077.)