

Model to Incubate Rural Agribusiness in Central Java: Lessons from an Action Research

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Abstract. This paper aims to develop a model to incubate a rural agroindustry. It elaborates the steps in the participatory development of group entrepreneurship utilizing local resource, identifies the enabling and inhibiting factors and the challenges ahead. This is a collaborative action research between Jenderal Soedirman University (Unsoed), Politeknik Banjarnegara, and the local government of Banjarnegara district. The research team consists of multidisciplinary personnels (economics, management, and food technology). The project began with intensive coordination between Unsoed and The Planning, Research and Development Board of Banjarnegara district. The board identified taro as a local natural resource that has not been processed for commercial purposes despite its huge potential to be developed as a promising food processing industry. Unsoed and the board agreed to develop entrepreneurship by utilizing this local resource. The board has led the collaboration among the local government agencies involved in this project. Group was chosen as a strategy to develop entrepreneurship. Members were recruited from farmer groups, women farmer groups and rural youth. They have been provided with motivational support, trainings on taro processing, production tools and machines, packaging and labeling, promotion and business networking and other business assistance necessary to develop the new venture. Data were collected through documents, participatory observations, informal interviews and group discussions with members of the new venture group and the relevant government agencies. Online discussions were also conducted to intensify communication between stakeholders. Through reflective evaluation based on the collected data, the authors and stakeholders discussed the corrective steps to succeed the new venture. Data collection and decision making about the progress of business (product, pricing, promotion, sales, human resource, and profit) went on a regular basis. Based on this process, lessons learned were concluded. The results show that the strong support from the district government, good coordination among government agencies and other stakeholders, provision of entrepreneurial motivation, training, and mentoring have lifted up the branding of taro from low-value to higher-value commodity, and provide employment and income to rural people. The identified enabling factors are trust, support and coordination among stakeholders, and innovation. Building trust between organizations instead of individuals could be challenging in the future. Another challenge is the capacity building of the group-based venture to facilitate continuous improvement.

1. Introduction

Most of the world's poor live in rural areas and are primarily engaged in agriculture. However, with more open trade, low prices of staple cereals in world markets, and slower population growth, the importance of agriculture for economic growth and poverty reduction is no longer so clear. Therefore, the main pathways out of poverty should be connected to increased productivity in farming, rural non-farm enterprises or by rural-urban migration. In most developing countries rural non-farm output now accounts for roughly half of rural income. The rural non-farm livelihood often enjoys greater potential

for growth in income than agriculture, especially for rural areas with high levels of physical infrastructure and human capital. The non-farm income increase welfare in rural areas [1], increase school participation rate among children of low-educated and poor mothers and thereby bridging the gap of inequality in rural education [2]. Non-farm livelihood improved nutrient supply and farming households participating in non farm enterprises are better off than non-participants [3].

Although there have been many studies on rural non-farm entrepreneurship, few have focused on discussing how to initiate entrepreneurship in rural areas that face multiple constraints such as lack of motivation, skills, capital, and network. Therefore, this paper fills this gap by discussing the steps to kick off entrepreneurial activities in the village by utilizing local potential, which is based on an action research, and the lessons learned from this initiative.

The relationship between economic growth and entrepreneurship begins with Schumpeter's contribution [4]. Schumpeter developed the theory of creative destruction, in which discoveries by entrepreneurs with temporary monopoly power generated new knowledge, which were spilled over the whole economy through imitation and shifted the economy to a higher income level. Although the model of economic growth according to neoclassical school of thought [5] does not emphasize the role of entrepreneurship in economic growth, but endogenous growth theory [6,7] addresses the role of entrepreneurship more explicitly. According to the endogenous model, the knowledge available in a region provides opportunities that are exploited through new ventures [8]. There have been no prescriptions to boost economic growth. Nevertheless, Tridico stressed the importance of human development and institutions [9]. Tridico specifically mentions that there are two types of education: learning by schooling and learning by doing. These two aspects — education with learning by doing approach and institutional strengthening — are adopted in this study because both aspects also encourage the growth of entrepreneurial activity.

Universities were once described as 'ivory tower' institutions focusing only on teaching and research which then evolved into the engagement of universities in 'third mission' and 'triple helix mission' [10]. The 'third mission' can be interpreted as putting knowledge produced into use by reaching out to social and economic players outside the sphere of knowledge production. The 'triple helix mission' relates to knowledge production and knowledge use as systemic functions in a dynamically interactive knowledge network and innovation model [11]. It follows from triple helix concept that institutions mediate interaction of subsystems of the innovation system and ensure communication with the agents that are outside the community [12].

The evolving mission of universities has led to studies on university spin off, incubators, and business mentoring [10,12–16]. This paper deals more with efforts to develop a new venture. Launching a new business is hard; US Census data shows that approximately 25 percent of new businesses are abandoned within the first year of founding, 55 percent fail by their fifth year, and only 30 percent last beyond their tenth year. In facing such situation, business incubators, including those based in university, can play a determining role. Firms joining a business incubator expect to benefit from additional resources, connections, and legitimacy that can help a firm connect with key stakeholders such as suppliers, investors, distributors, and markets, which can promote firm survival and performance. University incubated firms have greater employment and sales and grew faster in number of jobs and sales than non-incubated firms because university incubators typically provide greater connectivity and legitimacy to key industry and community stakeholders [16]. Based on the experience of Indonesian public universities and expert evaluation, the framework of successful business incubators consist of nine independent variables and three moderating variables. The independent variables include ability of the business incubators, incubator governance, entry criteria, exit criteria, mentoring and networking, funding and support, governance support and protection, university regulation, and system infrastructure. The three moderating variables include the age of facilities, credibility of facilities, and credits and rewards [15].

Some authors emphasize the significance of trust among network players [10,14]. This is particularly challenging when key personnel in the communities change positions [14]. Nakwa and Zawdie also points out the weak role of intermediaries in promoting network development and the absence of consistent policy support to network development [10]. Halaby further notes the particular importance to identify and utilize basic technological platforms to address the key challenges of distance and

program scalability [14]. Choudhary et al reported that an action research to develop farmers' resilience through community-based enterprise have contributed to increased productivity and farmer incomes [17]. The results show that policy change, improved provision of technical and financial services, establishment of common facility centers, and strengthening of farmers' institutions are imperative to enable smallholder farmers to engage in value chains and thus increase their resilience.

This paper presents an action research to alleviate poverty in rural areas by promoting non-farm enterprise in Balun, a mountainous village in the district of Banjarnegara, Central Java province. The village was purposively chosen because during 1996-2017 rural poverty in Indonesia was persistently higher than urban poverty (BPS, 2019). Poverty rate in the district has decreased from 29.40 percent in 2006 to 15.46 percent in 2018. However, the figures are higher than the national figures. The national poverty rate decreased from 17.8 percent to 9.66 percent during the period (bps.go.id). In 2018, the poverty rate of Banjarnegara Regency was 15.46 percent, the 6th highest among 35 districts / cities in Central Java. Banjarnegara is one of the districts in the western part of Central Java province covering an area of 106,971.01 hectares. Banjarnegara clearly defined its first mission to improve community welfare through agriculture-based development and competitive local potentials. Based on data from the Statistics Agency (BPS), the contribution of agriculture to Gross Regional Domestic Product of the district at current prices in 2017 was 30.21 percent, the highest among other sectors.

2. Methods

This paper presents a two-year participatory action research of a collaborative initiative to develop a group entrepreneurship by the Faculty of Economics and Business, Jenderal Soedirman University, Politeknik Banjarnegara and the Government of Banjarnegara district. The research team from Jenderal Soedirman University and Politeknik Banjarnegara consists of multidisciplinary backgrounds: development economics, management, and food technology. Participatory action research actively involves the stakeholders (see Table 1) to review the existing conditions and to make decisions about actions to be implemented in order to make change toward a better future.

Rural poverty in Indonesia has been persistently higher than urban poverty. Therefore, efforts to alleviate poverty should be prioritized for rural areas. The village of Balun in Wanayasa subdistrict was selected as it is among the poorest villages in Banjarnegara district. Based on the identification of local potential by The Planning, Research and Development Board of Banjarnegara district, taro was selected as the local raw product to be developed as it is very typical in the areas. Despite its potentials, it was hardly processed into food products for commercial purposes. Group entrepreneurship was chosen as a strategy to develop entrepreneurship in the village because the principle of kinship has been widely known in rural areas. This action research was funded by The Directorate General of Research and Community Development of The Ministry of Research, Technology and Higher Education and the government of Banjarnegara district provided supplementary funding for trainings and promotion. The interventions for incubating the new business consisted of training, capital provision, business consulting, promotion and marketing assistance. The effect of entrepreneurship training or business development services are stronger than that of financial intervention [18].

The steps to execute the action research began with coordination with The Board of Planning, Research and Development of Banjarnegara district. The board is the local body responsible for coordinating the district agencies. Therefore, the research team chose the board as the initial partner. The board then identified the local government agencies of Banjarnegara district which should coordinate to support the actions to develop entrepreneurship in the research area. Because the project is to develop agroindustry in rural areas, based on the job descriptions of the agencies, The Agency of Industry, Trade, Cooperative, Small and Medium Enterprises is in charge for leading the project. The person in charge of the project is the Head of Agroindustry Section of the agency. Therefore, the most intense communication was conducted with the Agroindustry Section. Apart from collaborating with district agencies, the team also collaborated with other stakeholders such as local food industry and distributors. There have been two food industry enterprises that supported the project and two distributors to extend the marketing coverage. The identified stakeholders and their roles are presented at Table 1.

Table 1. Project stakeholders and their roles.

No.	Stakeholder	Role
1.	Head & Vice Head of Banjarnegara district	Policy maker of development in Banjarnegara district
2.	Board of Planning, Research and Development	Coordinating collaboration among government agencies
3.	Agency of Industry, Trade, Cooperative, Small and Medium Enterprises	Partner in supervising the development of manufacturing, marketing, and institutional aspects
4.	Agency of Health	Partner in supervising and issuing permit of household industry
5.	Agency of Agriculture and Livestock Production	Policy maker in the development of local agriculture and livestock commodities
6.	Subdistrict Head of Wanayasa	Policy maker in the community supervision in Wanayasa subdistrict
7.	Agency of Agricultural Extension of Wanayasa Subdistrict	Partner in community supervision to cultivate taro and its processing
8.	Village Head of Balun	Partner in community supervision in Balun village
9.	Local flour producer	Partner in producing taro flour
10.	Bakery	Provide production training and marketing
11.	Community groups in Balun (farmer group, women farmer group, youth)	Direct beneficiary of the project

Data were collected through documents, participatory observations, informal interviews and group discussions with members of the new venture group and the relevant stakeholders. Online discussions were also conducted to intensify communication between stakeholders. Through reflective evaluation based on the collected data, the authors and stakeholders discussed the corrective steps to succeed the new venture. Data collection and decision making about the next steps (product, pricing, promotion, sales, human resource, and profit) went on a regular basis. Based on this process, lessons learned were concluded. These methods have been used in other studies on entrepreneurship training (see for example [19]).

3. Results and Discussion

3.1. The Model

Several The plan to develop rural entrepreneurship was communicated to the relevant parties to ask for commitment of support and to identify their respective roles in the project. In addition to the support from district agencies, support from the top management of the district is the most important as it facilitates coordination among lower-level district agencies. Therefore, the plan was also reported to the head and the vice head of Banjarnegara district. The commitment was realized by The Planning, Research and Development Board of Banjarnegara district by visiting Bogor municipality which has been well known as a center of taro agroindustry to learn about the policies needed to create an agroindustry center. Relevant agencies took part in the visit, which strengthened the commitment of the district government to develop a local resource-based agroindustry.

The initiative begins with an agreement between the Planning Agency, Research and Development of Banjarnegara Regency with the research team to determine the local potential to be developed. The agency coordinated the collaboration with the Agency of Agriculture (to guarantee the supply of raw materials), The Agency of Health (to guarantee the quality of food products), and the Agency of Industry, Trade, Cooperative and SMES (to ensure the consistency of production and distribution).

The Agency of Agriculture through the Agricultural Extension Service provides counseling about taro cultivation in Balun and surrounding villages to ensure the availability of taro. The Agency of Health organizes counseling about food security, while The Agency of Industry, Trade, Cooperative and SMEs provides various packaging and product promotion trainings. In addition, the Agency also channeled the new business group to a large company that provides Corporate Social Responsibility (CSR) funds for SME assistance and retailers who help product marketing.

The university transfer knowledge, technology, and initial capital to the new business group. The research team also collaborated with the local flour industry and the bakery industry. The local flour producer usually only produces modified cassava flour. With the same technique, the manufacturer was asked to make flour from taro. The flour was then given to bakery for product experiments. The two companies were then asked to train the new business group to make taro flour and its derivative products.

Based on the above explanation, here is our model that we developed for incubating an agroindustry in rural areas by utilizing local resources.

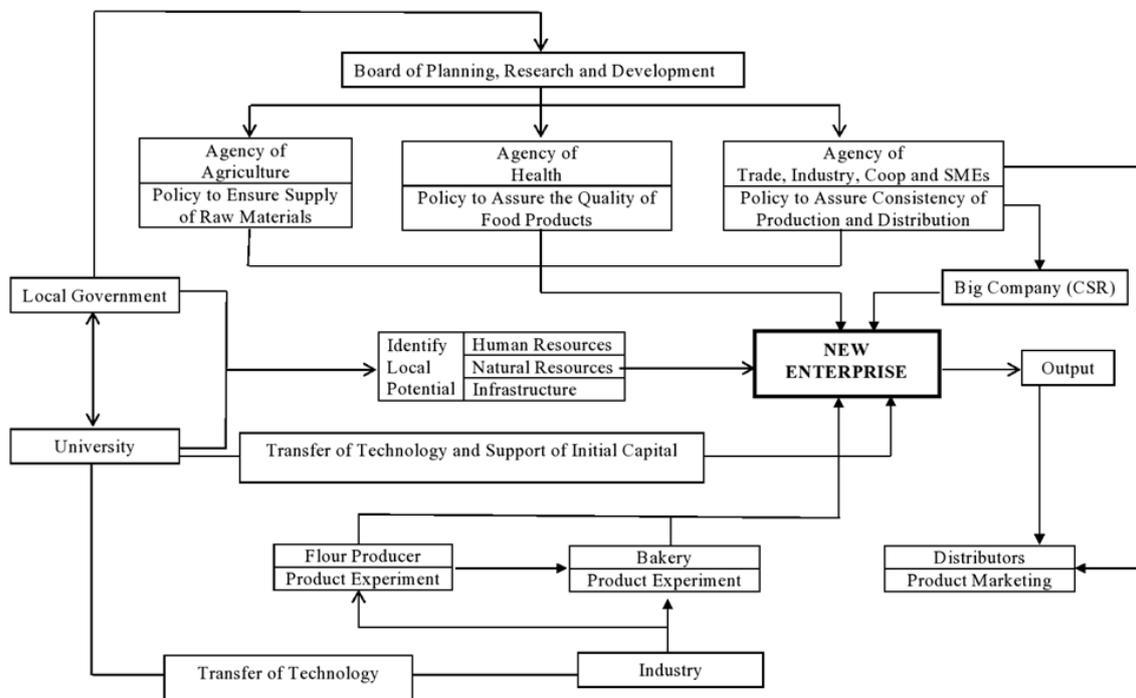


Figure 1. Model of incubating an agroindustry in the village of Balun, Wanayasa, Banjarnegara

Source: based on authors' action research

Having received commitment and support from the top management and agencies at the district level, the team proceeded with communicating the plan to the subdistrict head and the village head who enthusiastically responded to the initiative. Together with the village head, the team identified the beneficiaries of the project. They involve the following groups: farmer group to supply raw material, women farmer group to process the raw material and the village youth to distribute the products. Farmer groups were chosen because farmers are the poorest group in the village. The project is intended to improve the community welfare. It is therefore, farmer groups should be the appropriate beneficiary.

The first meeting with the beneficiaries was attended by the research team, the head of the Agency of Industry, Trade, Cooperative, Small and Medium Enterprise, the subdistrict head of Wanayasa, the village head of Balun, and the beneficiaries. The first meeting aimed to generate awareness of the

beneficiaries to improve their welfare by utilizing local resources. Local resource has high potential to increase income by creating value added. At the end of the meeting, the beneficiaries consisting of 24 members committed themselves to the project. They also agreed to name their group “Kelompok Usaha Bersama Begug Sejahtera”.

So far, in the village, taro was only steamed for home consumption. In fact, based on the observation in Bogor municipality and discussion with food industries in Banjarnegara, it should be possible to process taro into various higher value-added products. Therefore, the team facilitated a women farmer group called Sinar Tani to produce taro flour, which has been produced on a laboratory scale at campus. Sinar Tani was selected as it has been successful to produce modified cassava flour. The modified taro flour produced by Sinar Tani was then used as a sample during the training in the village of Balun. The flour was also delivered to two bakery industries for product experiment. The results of their experiments were then transferred through trainings to the beneficiaries in the research area.

One week later, the beneficiaries participated in a 3-day training on production techniques. They were trained to produce flour from taro, which were then used as raw material to produce brownies, rainbow cakes, and eggrolls. They were granted with the necessary production tools such as mixer and oven. Stoves were not provided because they have had stoves at their kitchen. In addition, three production machines were granted to the group by the research team: slicer, cabinet dryer, and disk mill for flour production. The trainer of the flour production is a member of the research team, while the rest of the products were trained by the owners of bakery industries. Having learned the production techniques, the group was provided with an opportunity to practice at home. The research team supplied working capital to facilitate the practices. The team also facilitated the group with proximate testing and shelf-life testing of the products.

In the following week, there was a supervision from the Agency of Health about the requirements to get permit of household industry. Three days later, the team from the Agency of Health visited three production sites of the group to make sure that the kitchens met the required standards. One week later, the Agency issued the permit of household industry for the four products of the group: taro flour, “BROWNISTA” (taro brownies), “PELANGI” (taro rainbow cake), and “ROLLAS” (taro eggroll).

Five days after getting the permit, the center of taro agroindustry was officially launched by the Vice Head of Banjarnegara district. The new products were introduced to the public. Many participants of the launching ceremony appreciated the new products. The Vice Head of the district published the ceremony in his Instagram as well as Facebook account. Because it was launched by the Vice Head of Banjarnegara district, mass media were interested to disseminate the news. These publications have served as a very positive campaign to elevate the branding of taro from neglected into higher value-added products. The taro products since then have been being promoted continuously through various promotional events such as trade expo and participation in district celebrations. In addition, The Agency of Industry, Trade, Cooperative, Small and Medium Enterprises linked the group with food product distributors.

3.2 Sales and Problems Associated with Group Entrepreneurship

Only within 2.5 months, total sales has been IDR 9.6 million. It is a promising figure as compared to total assets granted to the group of about IDR 20 million. Paramanandam and Packirisamy emphasized the important role of marketing techniques that require immediate attention from those promoting microenterprises [20].

As a new group-based venture, some problems appeared during the course of the business including variation in product quality due to skill differences, fluctuation of member participation, and conflicts between members. The research team and relevant stakeholders discussed about the problems to find solutions. [21] argued that combination of skills, capital, and counseling based on main constraints of target group is important to achieve better results.

Because there were many products, job specialization was then arranged depending on the skills of individual members to ensure consistent product quality. Having discussed about fluctuation of member participation, it was concluded that some members were busy with houseworks and/or farm work making it difficult for them to leave home. The agreed solution is that there are some jobs that

must be done at the production site and there are jobs that can be accomplished at members' respective homes. Therefore, members who have difficulty leaving home can do parts of the job at home. Consequently, there is a need for additional production equipment.

Conflicts between members are caused by unfair distribution of income. There are members who spend less time at work and some who spend more time, but they receive the same share of income. The team recommended that members' working time be recorded daily and then used as a basis for profit sharing. Group members were trained in simple bookkeeping to calculate profit. The group discussed how much profit is retained and how much is shared with members.

A more serious problem is the unpreparedness of members to become entrepreneurs. They used to work in farms and receive daily wages. They are not accustomed to taking risks. In fact, products that are distributed in outlets are not necessarily sold. To overcome this conflict, at the beginning the group only produced by order so that income can be immediately shared. To encourage member entrepreneurship, the research team provided a guarantee that the group losses due to product withdrawal would be reimbursed. For this guarantee, the group began distributing products to outlets with a consignment contract. However, not all outlets showed good performance. From this experience, members learned to select best-selling outlets to reduce risk.

Because the research team only incubated the group for two years, the issue of sustainability became a critical point. For this reason, the Agency of Industry, Trade, Cooperatives and SMEs took the initiative to link the group with a large company in Banjarnegara so that the group would be assisted through its corporate social responsibility (CSR) programs.

3.3 Lessons Learned

At the very beginning, trust between the initiating parties has been crucial. The success of this incubation effort requires the cooperation of many parties in ensuring the availability of raw materials, adequate training, smooth licensing, consistency in product quality, production and marketing. For this reason, mutual trust between stakeholders is essential for each of them to realize their commitments. Before launching this project, the team from the Faculty of Economics and Business Jenderal Soedirman University has been in intense collaboration with two government agencies for research and community empowerment for about three years, which facilitates gradual trust building between both parties. Based on a shared value, both parties have committed to sustain the efforts to empower the community. The challenge lies in the fact that trust has been built between the individuals, not between organizations. So, it could be quite difficult to sustain the commitment when employee rotation or promotion takes place at the district agencies. The result confirms [14] and [10] who emphasized the significance of trust among network players.

In addition to trust, support and coordination among stakeholders are two fundamental aspects in such a project. Therefore, the role of the district top leader has been very determining to help promote the new product and to coordinate the district agencies. The Vice Head of Banjarnegara district has aggressively promoted taro products in his social media accounts and through mass media publications. Moreover, as a local government agency, The Planning, Research, and Development Agency has been organizing the coordination among other district agencies very well, especially regarding budgeting to develop the new agroindustry center. For example, The Agency of Agriculture and Livestock Production allocated budget to improve the techniques of taro cultivation and to empower the community to cultivate taro at their home garden, and The Agency of Industry, Trade, Cooperative, Small and Medium Enterprises allocated budget to develop taro processing industry. Only when the whole stages in supply chain are taken care, the development of the agroindustry would be successful. [10] accentuated the weak role of intermediaries in promoting network development and the absence of consistent policy support to network development among the constraints to realize triple helix mission.

Continuous innovation is the key to business success. Previously taro was simply steamed for home consumption. Therefore, further processing into flour, cakes and cookies has been very attractive to the market. Many of the public do appreciate the fact that local flour can be a perfect substitute of wheat flour, which cannot be produced locally. So far innovation has been induced by project initiator

in collaboration with food processing industry. In order to sustain the business survival and progress, the group should innovate unceasingly to win competition against other food processing enterprises. This could be a challenge because the group members are not used to be exposed to business competition. Awareness and capacity building should be the homework in the later stage of the project.

4. Conclusions

University has evolved from traditional practices of teaching and research to active engagement in community empowerment. In response to the increased rural-urban inequality, this action research developed a collaboration between university and local government to create an agroindustry processing low-value into higher-value local resource. By selecting the poorest village as the study site, it is expected that this effort will contribute to generate an equitable economic growth. The results show that the strong support from the district government, good coordination among government agencies and other stakeholders, provision of entrepreneurial motivation, training, and mentoring have lifted up the branding of taro from low-value to higher-value commodity, and provide employment and income to rural people. In such an effort to empower community, the critical factors should be taken care. These include trust, support and coordination among stakeholders, and capacity building to facilitate continuous innovation.

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