

# Improving Crop Farming Performance with Revitalising Institutional and Extension Program in Central Java Province-Indonesia: An Alternative Exit Strategy from Agriculture Turbulence

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**Abstract.** Several objectives of the study are: (1) to evaluate the performance of crop farming and agriculture extension institution; (2) to estimate the transaction costs needed to designs the revitalisation scenario for agriculture extension institutions and programs; (3) to outline the strategy for revitalisation of agriculture extension models for sustainable development achievement. This research applied primary data through interview with respondents and key-persons (informants). There were 200 farmers and 30 Agriculture extension agents withdrawn by multistages sampling. Transaction Cost was invoked to estimate the costs needed to revitalised the institution arrangements for agriculture extensions. The results indicated that the inputs used in the study area was inefficient. Then, agriculture extension agent performance was also found sluggist in pilot location of Grobogan and Klaten. Number of extension agents in research area have not reached the ideal figure. The transaction cost for revitalised institution arrangements was designed with several scenarios subject to the cicumtances of the government level. Lastly, empowerment efforts to the stakeholders is indeed need to be accelerated accordingly. To facilitate the program working faster then user-friendly of ICT extension model has to be applied widely to grassroots.

**Keywords:** Extension, Agent performance, Farming, Revitalisation, Institution, Transaction-cost, Central Java, Indonesia.

## 1. Introduction

Famine and malnutrition had threatened the health maintenance, the intelligence development, and even the life of almost 254 millions people in the world. They happened in developing countries (including Indonesia), which has 820 millions people; in developed countries which has 9 millions people, and the other 25 millions people in the transitions countries (Food and Agricultural Organization, 2007). A recent study conducted by FAO argues that a country with more than 100 millions people tends to or even cannot develop itself to become a prosperous country if it depends on imported foods. According to Syahyuti et al. (2003) the agriculture sector was actually able to function as one of the strategies to reach the economic recovery as well as to provide a good scaffolding and foundation for the development of the real sector from the long lasting economic crisis since 1997. Agribusiness has proven its high persistent existence, as the other sectors slumped. As the farmers' lack of knowledge and capacity in developing their farming system and the absence of the supporting organization, in providing the solution of the problems regarding increasing the productivity and the farmers' income, it was expected that field extention agriculture played an important role model to improve the existing weak organizational system (Mudjijo, 1999). Therefore, in every governmental era, there was an effort to improve the quality of the extension agents performances.

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## 2. Materials and Method

The objectives of the study were: (1) to evaluate the performance of crop farming and agriculture extension institution; (2) to estimate the transaction costs needed to designs the revitalisation scenario for agriculture extension institutions and programs; (3) to outline the strategy for revitalisation of agriculture extension models for sustainable development achievement.

The research took place in Grobogan, Magelang, and Klaten regencies (BPS, 2006, 2009). The research employed mixed methods (Brannen, 1992; Creswell et al., 2007) a combination of quantitative (Mason, 1999; Hair Jr. et al., 1998) and qualitative methods (Moleong, 2004). The primary data were collected from interviews with respondents comprising key persons, (200 farmers and 30 extension agriculture). The descriptive statistics were selected for describing the profiles of the respondents, the performance of the extension agents, and the organizational condition of the extension agents. The Transaction Cost (Abdullah, et al., 1998; www.worldfish.org) was utilized to estimate the cost needed to design scenarios of organizational extension revitalization in order to reach the development of the extension agents' capacities.

## 3. Results and Discussion

The capacities of extension agents were expected to be the main influencing factor in improving the performance of agriculture activities in the research areas. Based on the previous research, it could be concluded that the agriculture behavior in the research areas was not managed efficiently. There exists therefore an opportunity to optimize the agriculture production through extension and employing appropriate inputs as needed. The extension agents in Grobogan and Klaten had moderate performances since they were familiar in disseminating agricultural extension information on grain farming as requested by the government of the New Order era, such as paddy. Meanwhile, in Magelang regency, the extension agents had low performances because of the limited knowledge they had on vegetables farming. The extension agents had mastered several fields of expertise covering food resource agriculture products, horticulture, fisheries, forestry, and animal husbandry (Margono, 2001). There was a need from the results of the study, of multi expertises among extension agents which had never existed during the New Order era.

The lack of extension agents available in Grobogan regency had influenced the coverage area which should be serviced and maintained (Puspitasari, 2008; Bakorluh, 2009). As a consequence, many farmers in Grobogan regency didn't know the recent mechanical technology of soyabean dryer machine and how to make use of the technology this had resulted in soyabeans harvested during the rainy season possessed a high level of water content. Moreover, there was a lack of information about weather from the Meteorology, Climatology, and Geophysics Bureau. Furthermore, the existence of market channel might provide inaccurate information of the agriculture products. The inaccuracy of information had often brought financial disadvantages to the farmers.

The result of the study showed that in Klaten regency, rice was the only single crop planted and the farming pattern and the agricultural behavior of were related a growing rice. Even they had a jargon "padi pari pantun" meaning "paddy, paddy, paddy". The single cropping pattern affected the composition of the soil nutrient as well as encouraging many harmful bugs and reduced product. There was no law protection againsts planting other rice varieties, other than that recommended by the extension agents. Moreover, the extension agents performance, especially when dealing with vegetables farming, was considered low. The vegetables were grown in highland areal and the farmers set their own farming system and pattern. The extension agents often followed the farmers' pattern (Waridin, 1999; Waridin et al., 2009). In fact, the farmers did not believe or could not accept the information from the extension agents easily because the information for example, about climate and weather from the Meteorology, Climatology, and Geophysics Bureau, did not concus with the; traditional agricultural weather forecast which in fact they had used for over centuries. This had resulted in, "salah mongso" or "wrong season" often happened.

The research offered a model aimed at improving the organizational capacity of the extension agents through maintaining the decentralized model by adding the cost of information and improve cooperation between stakeholders, with extension agents delivering the information related to agribusiness by utilizing the fast and accurate information technology. The information presented in this IT was drawn from a

databased system which was supplied by all concerned parties such as the department of the industry and trade, agricultural bureaus, research centers, and universities. Furthermore the data base was used to disseminate the information related to the agribusiness such as supply of agricultural production, fertilizer, climate, agribusiness expedition, etc. The updated information could be accessed by the farmers, the concerned persons and parties, including the extension agents, only by using cell phone or internet. The accessibility of the information could be selected based on the users' need. Moreover, farmers who could not get access to the information because of financial constraint to afford an internet, could still access the updated information using an SMS through the cell phone. The information which could be provided in the data base included the pricing of all of the agricultural products which could be the farmers' guide in selling their agricultural products. Furthermore, the extension agents, equipped with their educational background and the government infrastructure facilities, were able to access the information more accurately. This information would be the one which would be disseminated to the farmers. The information about agricultural policy and technology could be transferred to the potential users faster and cheaper. The data base could also be accessed by the public so that it would be useful when references were needed as the main consideration before issuing a certain policy. The information technology extension model proposed in this research could give farmers more bargaining power, and organizationally were able to improve the quality of the extension agents, service, which led to the optimum development of the quality of the agribusiness activities.

The extension transaction cost was the cost needed to plan, implement, and develop the extension organization. In order to evaluate the potential of all organizational model of the extension transaction cost, there was a comparative study on centralized organization transaction cost (during the period of 1995 – 1998) and the decentralized organization transaction cost (period of 2006 - 2009). The extension transaction cost included the information fee, the cost of defining the solution to the problem, and the operating cost. The transaction cost was determined based on the time spent by the extension agents. The time spent by the extension agents to carry out their duties and responsibilities in providing extension service. The operating cost in the centralized organizational model was generally lower than the decentralized organizational model. On the other hand, in the monitoring and evaluation activities, the extension agents had to spent more time. The decentralized organization (Janssen, 2002) requires the instructors' to have polyvalent expertises. The required polyvalent expertises, however, forced the instructor to spend more time to execute their duties and responsibilities. The ideal number, as recommended by the department of the agriculture (2008), was that one village one extension agent, meaning that the number of the extension agents in Central java should be equal to the number of villages in Central Java. So, the cost of BOP was Rp. 250,000/ person/ month. The cost on time spent the number of villages in Central Java, which were 8573. Therefore, the transaction cost for the revitalization of the agricultural extension in Central Java, based on the researcher's scenario for the next year's budget would be 109 Billions. The total cost was stipulated in the Regulation Numbered 10, the year of 2006. The Regulation further implied that one village should have at least one extension agent and, in regency, there should be one Agricultural Extension office that was organized and managed. The information cost in each regency was then added with the cost of affording the database, which was mainly the necessary and important data needed by the farmers in each district through maintaining the decentralized model by adding the cost of information in line with the system behavior and improved cooperation between stakeholders.

#### **4. Conclusions**

This research provided new ideas in the application of using information technology for agriculture extension, especially through cell phone utilization, which most farmers already possess. By adding more transaction cost, the extension could be organized effectively and efficiently because the information on the agribusiness development could be up dated by the farmers. The transaction cost for extension agents after the reform era (decentralized model) especially the operating cost should get more attention. This was done particularly to encourage the instructors to carry out their duties in providing information as well as handling extension related issues. Moreover, it was also intended to mobilize the instructors in executing their duties

and responsibilities. The decentralized organizational model requires the instructors about are polyvalent expertises.

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