

The Educational Approach for Sustainable Agriculture

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Abstract: This study focuses on the educational approaches for sustainable agriculture through the development, application and research of teaching and learning practices. These approaches serve and connect educators such as lecturers, students; decision makers such as regent, mayor or village head and local people who focus on the teaching and learning of sustainable agriculture. This research conducted in Turatea District, Jeneponto Region, South Sulawesi, Indonesia. People of the district in general plant paddy, onion and corn. The aim of research is giving sustainable agriculture educational programmes to local people. The result of this study shows that needed to work together in making formation of communities. Men and women can create complex economic lives through pre-farming, food gatherers and first to plant or harvest crops. These approaches teach local community in offering protection for defense, centers for trading, different skills/talents live together to increase food production. For the conclusion, sustainable agriculture educational programmes develop activities that believe in collaborating educators, decision makers and local community can build sustainable agriculture for now and into the future.

Key words: Decision makers, educational approaches, educators, local community, sustainable agriculture

INTRODUCTION

Jeneponto Regency capitalized in Bontosunggu has wide are or 837,99 km² and divided into 113 village and 11 subdistricts. Jeneponto Regency has main commodities such as agriculture, plantation, agriculture, fishery, livestock and service sector. Main commodities of agriculture are corn, soybean, potato, banana, pineapple, sweet potato and cassava. Main commodities of fishery are fishery catch, fresh water pond culture, sea culture and brackish cultivation. Main commodities of livestock are cow, sheep, goat, buffalo and horse. Main commodity of service are culture and nature tourism (CBOS, 2014).

Jeneponto regency is divided into eleven districts such as Bangkala, West Bangkala, Tamalatea, Bontoramba, Binamu, Turatea, Batang, Arungkeke, Tarawang, Kelara and Rumbia (CBOS, 2014). This research conducted in Turatea District that focuses on sustainable development in the agricultural sector. This research also installed a collaborative working group of lecturers from Hasanuddin University and Jeneponto government to reflect on agricultural knowledge and innovation systems.

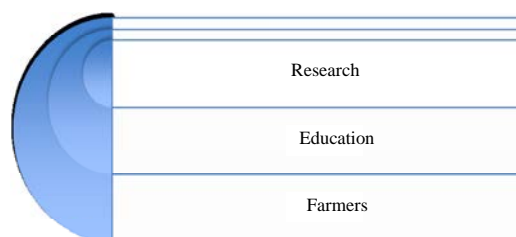


Fig. 1: Actors in the sustainable agriculture directly relevant for agricultural innovation in the food chain

Innovation system is as part of sustainable agriculture. Agriculture, innovation and research go hand in hand. This research emphasis on the organizations involved, the links and interactions between them, the institutional infrastructure with its incentive and the budget mechanisms. Farmer, education and research are often stressed because it is important to realize that there are many more actors in the food chain that directly influence decision making of farmers and their innovations.

Figure 1 shows the innovation starts with mobilizing existing knowledge. There is a social process

in the innovation, more bottom-up or interactive than top-down science to implementation. SCAR or Standing Committee on Agricultural Research said that “innovations is first all the responsibility of business but it is a government responsibility too. Innovation has not only benefits for those how innovate but also others gain: future innovators as well as the clusters of business and the economy at large with a better competitive position and in the long run more jobs and higher incomes” (SCAR, 2012). This statement focuses on the empowering people to innovate, unleashing innovation in firms, creating and applying knowledge, applying innovation to address global and social challenges and improving the governance of policies for innovation.

Problem statement: Education of agricultural with a narrow focus on a few staple cereals is no longer sufficient. Generally, researchers focus on the increased production of staple cereals assumes that the main food security challenge. This condition shows the narrow food. Therefore, in increasing the agriculture productions need efforts in a sustainable manner. Agriculture research and development will be required to be sensitive to more diverse agronomic conditions and more complex farming systems as well as to continue to give attention to environmental sustainability.

The aim of research: This study conducted research to develop and transfer solutions to agricultural problems of high national priority. This activity is as part of university’s support for regional government’s.

MATERIALS AND METHODS

Method of research is sharing knowledge at an agricultural farmer’s field school. The farmer’s field school concept has long been acknowledged in Indonesian agricultural development as a highly effective way of sharing knowledge. The current investigation involved surveys, direct observations and interviews. Total number of respondents was 75 farmers selected by the appropriate sampling method with data obtained through direct interview and focus group discussion. A structured questionnaire was prepared and used as guides in the focus group discussion. The structure questionnaire covered socio-economic information of farmers.

We selected key informants purposively including middlemen, staff or researchers from Jeneponto government, local government officers, community leaders (tokoh masyarakat), head of the village (kepala desa), religious leaders, who understand well the social and economic conditions of the village. Scientific journals

were a secondary data. Researcher focused on socio economic conditions of respondents and the study areas as a descriptive analysis.

RESULTS AND DISCUSSION

Jeneponto Regency can increase food production through collaboration between researchers and local farmers to make the best use of alternatives to rice and corn. For example, corn has emerged as one of the important food in the district (Table 1).

Researchers ask an exceptionally high yield and produce more edible energy and protein per unit area and time than many other crops. This way is one of example multiple-cropping systems in Jeneponto Regency. “There is scope for more research on improved varieties, appropriate production technologies and value addition” (Thiele *et al.*, 2008). Researchers promote corn varieties under local growing conditions since corn varieties are bred for conditions in Jeneponto.

Researchers and policymakers have a strong interest to develop disease-resistant, yield-increasing cultivars of millet and also revitalize production as means of addressing food security challenges. Researchers and government make collaboration in finding ways to bring the underutilized small grains back into the Jeneponto’s well products through multidisciplinary research and policy advocacy (Fig. 2).

Jeneponto region has agro ecological diversity in South Sulawesi, therefore the constraints of arable land could be addressed through better use of neglected zones. For example, farmers can increase productivity in the vast dry lands. This way is one of strategy in improving the livelihoods of the high percentage of poor households in these areas.

Researcher and local government use the sustainable intensification in enhancing productivity within the diversified dry land system. This system requires an integrated approach such as better management of natural resources in improving of crop, vegetable, livestock, tree and fish production. Wesley and Faminow in their research said that “a major concern in Asian upland areas arises often from insecure land rights and encroachment of large-scale farmers growing plantation crops. Upland

Table 1: Potential of corn at regency of Jeneponto

Production	Values
Production 2013 (TON)	226.060
Production 2012 (TON)	253.600
Production 2011 (TON)	239.434
Production 2010 (TON)	201.446
Production 2009 (TON)	194.582
Production 2008 (TON)	186.110

Statistic of South Sulawesi Province (CBOS) 2014



Fig. 2: Jeneponto Recency

communities often comprise ethnic minorities that are poor, increasingly food insecure and politically marginalized” (Faminow and Wesley, 2015). This condition happens not only in upland communities but also in dry land communities. Some researchers in CGIAR Research Program said that “poverty, food insecurity, natural resource degradation and climate change are global challenges; but impact most severely on rural communities in dry areas” (CGIAR, 2013). Looking this condition including Jeneponto Regency needs a collaboration innovative science, integrated approaches to research for development and effective partnership.

Local people in Jeneponto Regency can contribute to meeting the food security challenge in South Sulawesi Province for the first step. Therefore, they need security of land tenure and use as well as agricultural research and development as one of strategy in creasing education sector. In maximizing the dry land, we need integration with new thinking and new approaches in efforts to tackle the myriad of dry areas and to feed a hungry world.

Figure 3 shows the program in Jeneponto Regency in identifying and developing resilient, diversified and more productive combinations of crop, livestock, rangeland and agroforestry systems that improving Jeneponto’s productivity, hunger and malnutrition can be reduced and the quality of life of the rural poor can be improved. Sustainable economic growth in the use of the agricultural products base particularly biodiversity, water and land can be a major concern in dry areas. This research focuses on collaboration between market linkages, policies of government regency and local government and activities of researchers.

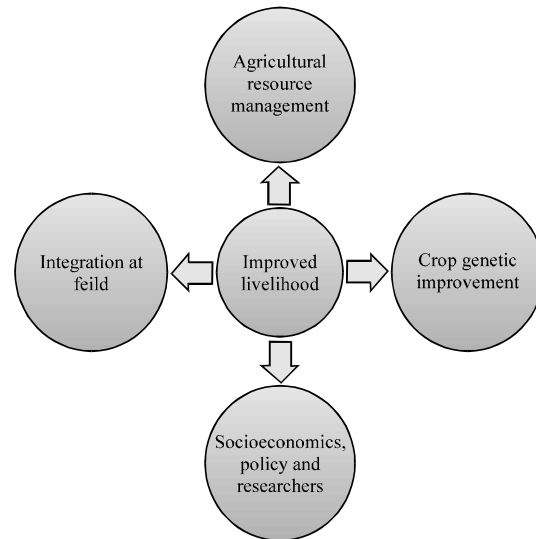


Fig. 3: The four pillars of an integrated approach to address challenges facing dry areas

CONCLUSION

This research builds the evidence base for-based and physical activity strategies and develops effective education activities to promote agricultural products and offerings and found that Jeneponto area could be improved by requiring agricultural service managers to hold agricultural-related college degrees, pass an agricultural service training program and by participating in a university-based agricultural program such Hasanuddin University team agricultural.

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