

Community Development Planning : Introduction of Integrated Farming System (IFS) to the Rural Community

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Abstract

Development Center for Appropriate Technology (DCAT) is a research institute that has a role to develop and implement Appropriate Technology (AT) in accordance with the needs of rural communities in Indonesia. In practice, the application of AT can not be carried out in the scheme of top-down intervention, but rather requires a participatory community development methods. Rural livelihoods, especially in the peasant community, have complex issues, ranging from land tenure, the means of production, waste pollution and management, production capacity, degradation of land, water and irrigation, information of technology, and marketing constraints of agricultural products. Therefore, it is necessary to create community development planning to determine the priority of the AT that is required. This paper will describe the steps of community development planning to introduce the Integrated Farming System (IFS) to the rural community. The setting and case study is the business development group of cattle and rice farmers in Sukatani Village, Subang, West Java, which is expected to be a pioneer of IFS within communities.

Keywords : *community planning, appropriate technology, integrated farming system, Subang, Indonesia*

Abstrak

Pusat Pengembangan Teknologi Tepat Guna (PPTTG) – LIPI adalah lembaga penelitian yang berperan mengembangkan dan menerapkan TTG yang sesuai dengan kebutuhan masyarakat pedesaan di Indonesia. Dalam prakteknya, penerapan TTG ini tidak dapat dijalankan dengan skema intervensi melainkan harus dengan pendekatan yang melibatkan partisipasi penuh dari komunitas sebagai pengguna teknologi tersebut. Mengingat mata pencaharian rumah tangga petani di pedesaan memiliki permasalahan yang kompleks, mulai dari penguasaan faktor dan alat-alat produksi, tata kelola limbah, kapasitas produksi, penurunan kualitas tanah, sumber daya air dan irigasi serta hambatan pemasaran hasil produksi pertanian. Oleh karena itu, perlu dibuat perencanaan pengembangan komunitas yang spesifik sesuai dengan permasalahan komunitas dan TTG yang dibutuhkan. Makalah ini mencoba menyusun sebuah perencanaan pengembangan komunitas dalam rangka memperkenalkan sistem pertanian terpadu kepada masyarakat pedesaan. Sebagai latar belakang dan studi kasus dalam perencanaan ini adalah komunitas petani padi dan peternak sapi di desa Sukatani, Kabupaten Subang, Jawa Barat, yang diharapkan dapat menjadi komunitas pelopor dalam penerapan sistem pertanian padu di wilayahnya.

Kata kunci : *perencanaan komunitas, teknologi tepat guna, sistem pertanian terpadu, Subang, Indonesia*

A. Background and Setting

In 2014, DCAT ran the program for Appropriate Technology (AT) implementation based on agribusiness development in the Sukatani, Subang-West Java. This program was only executed one year. The evaluation results showed that the program lacked careful

planning in the community development. The stages or phases of the program weren't planned well. Although at the end of this project, biogas and feed manufacture technology were successfully adopted by the group, there was the lack of a significant effect for the surrounding community. It can

be said that the project only benefits to the small group of cattle farmers who are partners in the program, but this program hoped to provide economic and environmental benefits to the wider community. Therefore, community development planning for these programs needs to be redesigned to be more participatory, democratic, systematic and in accordance with the principles of community development : flexible, accessible, innovative, responsive and relevant. The implementation of AT should be planned in holistic development scheme. The goal is that the technology really adds value to the community. Technology can be seen not only as a "physical equipment", but can also be understood holistically as a concern aspects of social acceptance, environmental friendliness, ease of operation, value-added economic and other impacts.

Integrated Farming System (IFS) management is an example of AT that are considered in accordance with the conditions of natural resources in Sukatani. Farming System is a process of harnessing solar energy in the form of economic plant and animal products that interact according to some process and transforms inputs into outputs (Manjunatha, 2014:31). The advantages of IFS are Improved profitability achieved mainly due to recycling of wastes of one enterprise as energy inputs for other systems. Theoretically, IFS will give an impact in

terms of economic efficiency and the environment sustainability because it's very effective in solving the problems of small and marginal farmers (Soni, 2014:36). The main question in our community is whether farm communities also assume that the system is useful for their future.

Cattle patterns in Sukatani still run traditionally (Prasetyo, et. al, 2015). Due to the security reasons, the cattle are usually located close to owner's house or in between the settlements. As a result, cattle waste is always causing pollution both during the rainy and dry seasons. The number of animals is kept on a small scale, but almost in every home. The waste is not only from beef cattle, but also from poultry, sheep, duck and others. Farmers view cattle as a type of investment in case of urgent need. However, the main economic activities and their routine are still rice farming. On the other hand, the advantage of rice farming is increasingly declining because of high fertilizer costs, climate change and the price is always manipulated by middlemen. Looking at the general picture like this, the community needs to increase their awareness of how they can make the right decisions for their future. This including efforts to increase the business scale of the economy to a more sustainable, so that the quality of life and standard of living in the community may also increase.

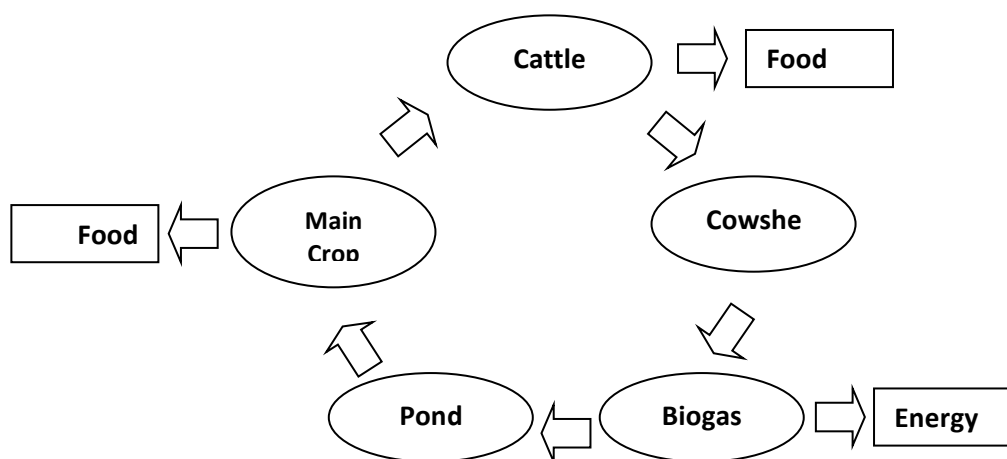


Figure 1. Integrated Farming System (IFS) concept based on experience of Indonesian Institute of Sciences (Julendra, et.al, 2013)

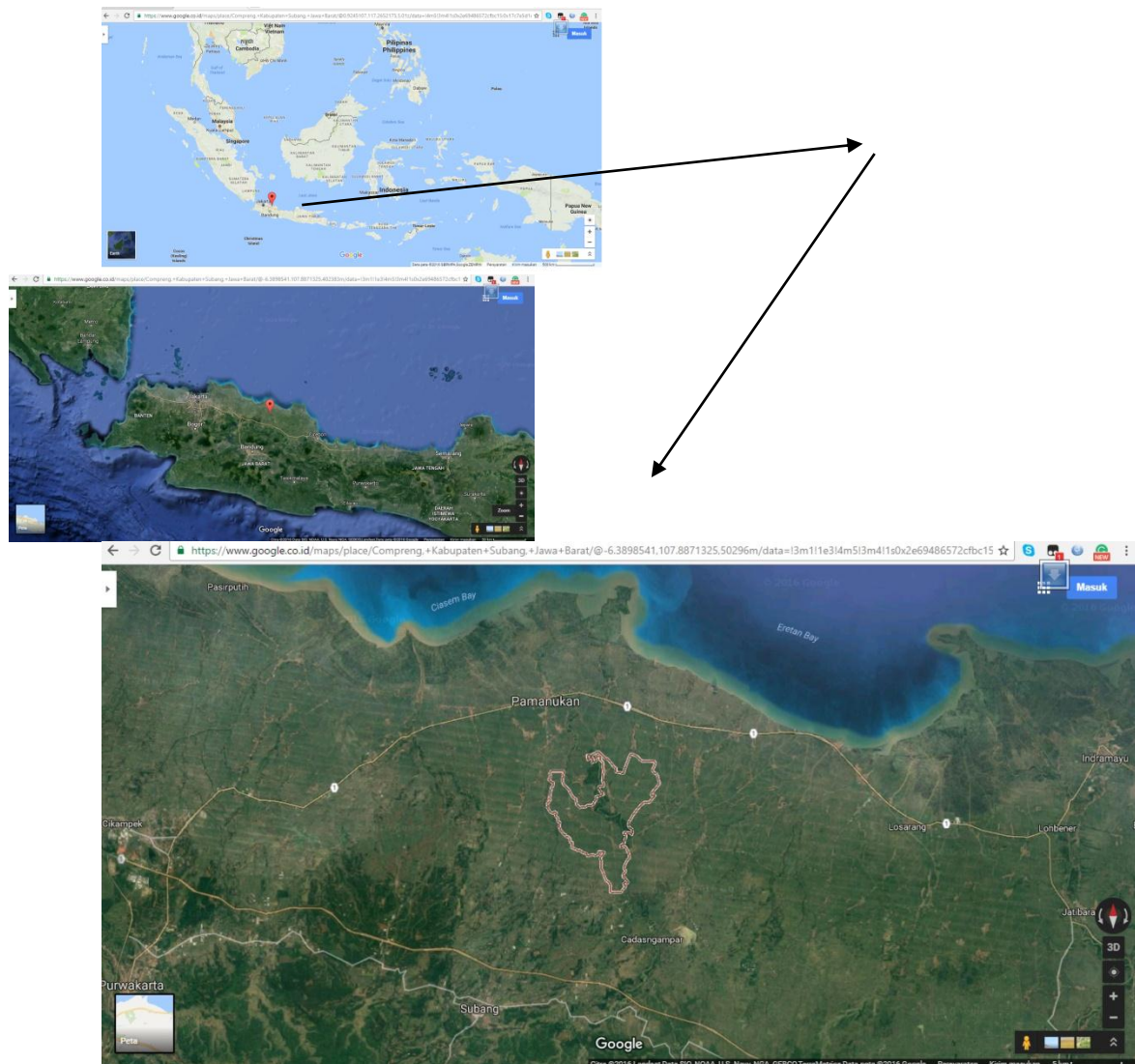


Figure 2. Location of Sukatani Villages in Subang District, West Java Province-Indonesia (source : google map, accessed 10/30/2016. 8.04pm)

Several problems that arise from a traditional cattle pattern in this community:

1. Cattle waste and pollution for neighbors in the rainy season
2. Waste cattle cause odor in the neighborhood
3. The management of cattle waste is not done collectively
4. Ordinary citizens are not willing to speak on the issue because the cattle owners are rich people / community leaders
5. Poor sanitation both in the cage environment to cause disease / threatening the health of cattle and humans

6. Because of the economic value of cattle is high, the security of cattle became the main focus of the owner. Consequently, they lack confidence in their neighborhood.
7. Results of primary agricultural decreased due to declining of soil quality.

The assumption of researchers about this community are:

1. Homogeneous in terms of ethnicity, language, and employment
2. Relatively homogeneous in their work, but They have extensive networks for many of its citizens who become migrant workers abroad

3. Communal and strong family ties
4. Lack of information about the latest agricultural technology
5. Rarely touched by the development program from the local government
6. Employment outside agriculture was minimal
7. Young people do not want to plunge into working land or agriculture

Various problems and assumptions above will be proven in the field and explored in detail with members of the community in Sukatani Village

B. Building Capacity

The farmersfamily and community in rural Subang can be said as a form of *Gemeinschaft*. Community as *Gemeinschaft*, to follow Tonnie's term, is expressed in family life in concord, in rural village life in volkways and in town life in religion (Delanty, 2010: 22). *Gemeinschaft* also represented a natural order, stable and congruent with human nature (McDonough, 2001: 2). Under these conditions, the local leadership is very important and dominant in the collective problem solving. Therefore, it needs a thorough design of community development planning that includes how organizing the community, building their capacity, supporting their leadership and empowering their economic and enviromental sustainability in the future.

Community development, according to Voth (1975) is "a situation in which some groups, usually locality-based attempt to improve their social and economic situation through their own efforts, using professional assistance and perhaps also financial assistance from the outside, and improving all sectors of the community or group to a maximum" (Mattessich, et. al, 1997:59). The role of the DCAT here is as a professional and financial assistance to go straight with the community and realize their hopes in the future. Thus, the stages of community development planning based on Appropriate Technology (introduction of IFS) can be formulated as follows:

B.1. Needs Assessment

In this stage, we try to extracting data and information related to the community in the Sukatani village. This

community assessment can use the Participatory Rural Appraisal (PRA) method. The results of this methods are ; *Social Map, Resource Map, Mobility Map, Services and Opportunities Map, Transect, Seasonal Diagram, Daily Activity Schedule, Dream Map, Cause-Effect Diagram, Network Diagram, and Livelihood Analysis* (Kumar, 2002: 23-296). The role of researchers in this activities are as a data collector and facilitator in the PRA and work together with community members to formulate a priority issue to be addressed. In addition, this assessment also will record every technology which are used and controlled by the community, so that will become a basis data for the next technological selection or technical solutions process.

B.2. Community Profile

Using the results of community needs assessment, the next step is to sort out the various data tocreate a community profile. A fully participation from the members of community, such as local leaders, cattle farmers, rice farmers, non-farmers household, and so on in the process of community profiling are needed. Some activities to make community profile include:*creating a steering group, initial planning, making contacts, learning from others' experiences, engaging professional researchers, and developing a management structure* (Hawtin, et al 1994: 17-31).

B.3. Dealing with Differences

On the discussion of community assessment and profile, a lot of voices and interests among local stakeholders who want their problem solved may appear. For example,the conflict interest between cattle farmers who want to extensively run their economic activitiesand non-cattle farmers households who want their environment clean from cattle waste will arise. The interests of women and men may also differ regarding their different needs. In addition, selling farmland is nowbecoming a new trend which is prevalent in rural areas, so it must be

underlined by the planning of the program. Facilitator should be able to capture the fundamental problems of community. They should encourages the community to have a proper perception of these fundamental problems, both in agriculture livelihood and neighborhood revitalization. Various potential future conflicts should be anticipated as early as possible by dealing with differences.

B.4. Starting inclusive group

After doing assessment, identifying the problems, and finding the priority issues to be resolved, the next step is to build teamwork in the field that works together with members of the community. This individual and group engagement process puts emphasis on the spirit of volunteerism, although financially support will prepare by the DCAT project on AT implementation. These volunteers will be involved in the intensive group discussion to creates "affective bonds", that is, a degree of attraction, liking and cohesion which facilitates the sharing of ideas (Chell, 1985:141). It is expected that they are representations of groups that exist in the village, such as youth groups, women groups, community leaders, religious leaders, senior farmers, beef cattle farmers, peasant household and so forth. Intensive face to face group discussion and field activities will awaken a strong teamwork and they will be able to circulate accurate information from and to other community members, horizontally and vertically.

B.5. Purpose, Values, and Vision

Value is subjective because it is defined as individual preferences and varies from individual to individual. Therefore, any relationship must exist between actors that would generate cooperation, commitment, solidarity, and trust (Zey, 1992:17). For this reason, we need "trust" to establish an agreement about the objectives, values, and vision of community. Development planning should be formulated together between teamwork and community because thisgoal and vision are tie that bind togetherness in the community. Ultimate

purpose may be focused mainly on a healthy environment, vital economy and quality of social well-being.

B.6. Community Action Planning Process

The most important thing after formulating the goal is how to realize the target that had been set up step by step. Because "the devil is in the details", the community planning process could be composed of a general plan to the detailed action. Therefore, the action plan should be carried out in the detail and measurable scheme. Examples of the action plan for community planning based on AT in Sukatani Village can be seen in table number 2.

B.7. Community network

Rice farming and cattle have different patterns of business networks. Rice farmers groups have a smaller range network. Instead, breeding and fattening, has a wider network of supply and marketing, even to the outside of the district and the province. Understanding these patterns of networking, cattle rearing, and agriculture patterns we are expected to open new networks within stakeholders. The meaning of integrated farming system network is trying to find individuals, groups or companies that need manure, meat, as well as having agricultural waste as a source of feed for cattle. This network will be realized in concrete cooperation and mutually beneficial to create a positive effect on the environment around the community.

B.8. Evaluation and monitoring : developing indicators and measuring impact

Community development planning should be consist of measurable indicators of success and periods of activity. The plan should describe the difficulties that can or can not be anticipated as well as how to deal with the unanticipated problems. The indicators will be a guidance for the evaluators to monitor and give their feedback. Evaluation process will follows by various stakeholders which are described in the stakeholder analysis sheet (table 1).

B.9. Celebrate learning

Maintaining the spirit of the team is no less important than achieving objectives of community development itself. This celebration was to encourage and reward for together achievement. No matter how small the success is, it can be achieved by teamwork and community should be celebrated in many ways.

C. Organization and Partnering

Community development activities should be able to build an inclusive and diverse network. Several qualities of social networks allow communities to gain control of reviews their social and economic development and to become effective entrepreneurially. Through the development of linkages with the outside, a community gains access to information its needs to make choices about its future (Flora, et.al, 2016: 174). In other words, the organization of this community should be able to revitalize or strengthen existing social capital in society, not vice versa.

There are three levels of which individuals can get involved (figure 4). The first level is the wider community

where one can involve everyone even if it is only to tell them about the profile and ask if they wish to contribute. The second level is those members of the community who may volunteer to help in a more practical way in assisting the process. Every person has a chance to be influential and make difference by being a volunteer (Hesselbein, 1998:51) The third level is a core group of individuals who will plan and manage the community profiling process (figure 4).

Accidental actions do not build community. We need deliberate acts between members of the community. Deliberate acts are those that we do are under our control, and so we don't perform them unless we choose to do so. All deliberates acts, either communal or anti-communal, are those in which we strive for some outcomes as the goal or end of our activity (Rousseau, 1991:107-109). Purposes of community development planning in the long-term are integration and sustainability of community. Principles in these activities are focus on special needs groups, gender equality and equity, participation and democratic process, local economic development, and accessibility for all members.

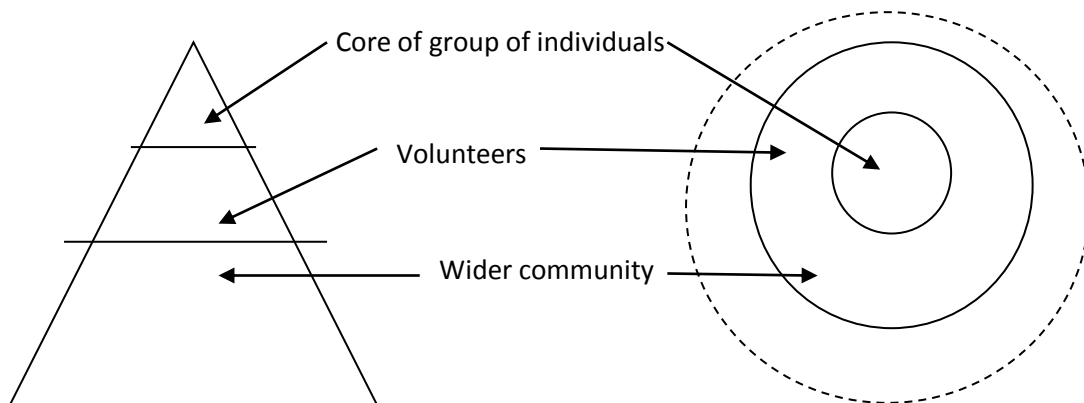






































































Figure 4. Three tiers of community involvement (Hawtin et. al, 1994:41)

Table 1. Methods for Developing and Reviewing Community Plans

Method / Process	Community plan	Local community plan	Thematic community plan	Community plan review	Evaluating community plan
Art and Creativity					
Community Mapping					
Planning for real					
Public meeting					
Focus groups/workshops					
Working groups/forum					
Web based consultation					
Future search					
Open space technology					
Roundtable consensus table					
Citizen panels					
Questionnaire					
Local community meeting					
Key			Not Appropriate		
			Often Appropriate		
			Usually Appropriate		

Source : Community Planning Toolkit, 2014:

Table 1. Basic Stakeholder Analysis for Monitoring and Evaluation of Program

No	Stake Holder	Role in Program	Stake, Interest, or expectation
1	Livestock Groups	Users of appropriate technology	Getting the economic benefits from the program directly
2	Head Man	Administrative-local leaders, bureaucracy, and authority	Pilot project in his community, getting the political benefits from the program
3	Rice farmers group	Obtaining information about the technologies, adopters of IFS	Whether the model of integrated farming system could be adopted in their daily activities
4	Animal husbandry Department	Local Government, bureaucracy, and authority	Whether the model of integrated farming system could be replicated to another village/community
5	Agriculture Department	Local Government, bureaucracy, and authority	Whether the model of integrated farming system could be replicated to another village/community
6	Biodigester maker groups	Make digester with a scale and price that compatible with the needs of the community	Whether biodigester can produce gas/electricity and operate optimally
7	Households (random)	Groups that feel the impact of livestock activities around their house	Whether integrated farming system effective in reducing existing pollution.
8	Technology provider	Technological and financial supporter	Whether the project funds have been channeled correctly, whether the project is successful.
9	Local University (Department of Agriculture or social sciences)	Analyzing the technology and community development models	Are there any knowledge and social change that can be absorbed as a lesson?
10	Agricultural extension worker/social worker	Field facilitators/a liaison between farmers	Whether the technology successfully adopted by farmers and community; how do patterns and processes of communication between stakeholders in the field runs.
11	Women groups/leader	Groups that feel the impact of livestock activities around their house	Whether integrated farming system effective in reducing existing pollution and make their environment better?

Table 2. Action Planning Worksheet

Vision Theme		Project Name		IFS-Sukatani	
Purpose of the Project		Introduce Integrated Farming System (IFS) for the rural sustainable agriculture and socio-economic productivity in Sukatani Community		Time Frame for Completion	
Members of the Task Group		A, B, C, D, E, F, G, H, I, N		Today's Date :12 Month	
Critical Steps		Who will be involved & make decisions		Information and assistance needed	
1. Needs Assessment		A,B,C		Local assistance, local resources, and local activities	
2. Community Profile		A,B,C, D, E		Local stakeholder, facilitators, wider community	
3. Starting Inclusive Group		D,E,F,G		local volunteer (rice farmer and cattle)	
4. Community Goals and values		D,E,F,G		local volunteer (rice farmer and cattle)	
5. Community Action Planning		F,G,H,I		local volunteer (rice farmer and cattle)	
6. Community network		J, K, L, M		Network Diagram	
7. Monitoring		N, O, P		Work plan & realisation	
8. Evaluation		Q,R,S,T		Local stakeholder, facilitators, researcher	
What difficulties do we anticipate and how will we deal with them?				Getting trust, access and legitimation from community → "giving back"	
How will we deal with unanticipated difficulties?				Support from others IFS best practices, comparison study	

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