

CONCEPT AND IMPLEMENTATION OF PARTICIPATION AND EMPOWERMENT: REFLECTION FROM THE COFFEE IPM-SECP

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Abstract

Participation and empowerment are two important keywords in agricultural development program. One of the agricultural programs that considerably implemented through farmer's participation towards empowerment is Integrated Pest Management (IPM). This article reviews the reflection of the concepts and implementations of farmer's participation and empowerment in the coffee Integrated Pest Management for Smallholder Estate Crops (IPM-SECP). It can be explained that farmers were participated only in the planning and implementation stages of the project, while monitoring and evaluation activities were solely done by the project implementing unit and other related agencies. In the planning stage, the extent of farmer's participation can be categorized as pseudo participation since farmers only participated if they were the head of farmer's group or local model farmers. Meanwhile, in the implementation stage, it was found that farmers had a high extent of participation in the various activities and practices of training carried out by the project. Nevertheless, farmers were empowered in terms of knowledge and skills gained, change in practices, decision-making, productivity, and environmental awareness. As a result, farmer's participation should be anchored in all stages of planning, implementation, monitoring, and evaluation, so that they would be able to get immediate genuine empowerment feedback of the project impact.

Keywords: participation, empowerment, coffee, IPM, East Java

Introduction

Background

Participation and empowerment are two keywords in agricultural development program. Wright (1990) mentioned that participation is associated to empowerment, therefore, participation as empowerment is an approach in which hold complete power over and are fully in control of a program or an institution. The participation for empowerment is usually characterized by autonomous process of mobilization for structural, social and political changes.

In general and macro context, participation is often perceived as a mass approach with ideological connotations, such as rallying and demonstrating in public and using political means to express collective opinions. In certain instances, it could be part of development. It means the involvement of target groups at program or project level in the development context, and the kind of involvement whereby target groups are motivated and activated, and even willing to make sacrifices for improvement of the groups in achieving specific and agreed objectives stipulated in the program

or project (Tjondronegoro, 1992). Empowerment therefore embraces in both increasing individual esteem and organizing collectively to break the dependency. The aim is to achieve human potential by people becoming subjects in their own world rather than objects in other people worlds (Wright, 1990).

Based on aforementioned, Sumodiningrat (1999) assured that participation is one of strategic development models in empowering people, which can be implemented in the short term as well as long-term development programs. Nevertheless, it should be noted that the essence of participation is not defined as development that 'absolutely supported' by people. This should be emphasized in as attempt to abandon the constraints of implementing participation concept towards empowerment, because: (1) the concept has not been fully understood by planner and executor of development programs; (2) there is a reaction of people since development is presented as ideology; and (3) many restricted regulations for people who wish to participate in the development programs (Sutrisno, 1995).

Objective

This article reviews the concepts and implementations of participation and empowerment in Integrated Pest Management (IPM) program with particularly reflected from the coffee Integrated Pest Management for Smallholder Estate Crops (IPM-SECP). Plausibly, the IPM is one of the recognized development programs implemented through farmers' participation towards empowerment in relation to management decision in agricultural production.

Methodology

Analytical Framework

Development is a process by which members of society increase their personal and institutional capacities to mobilize and manage resources to produce sustainable and justly distributed improvements in their quality of life consistent with their own aspirations (Morales, 1990). Furthermore, Chambers (1997) emphasized that the eternal challenge of development is to do improvement which is usually tackled by identifying policies, and projects. The essence is sustainability, which means that long-term perspectives should be applied to all policies and actions with sustainable well-being livelihoods as objectives for present and future generations.

Sustainable development involves many things. More appropriate technologies, supportive policies, different ethics, and changes in individual behavior are among the more obvious factors. One contributing factor that deserves more attention is community participation (Uphoff, 1992). Thus, participation must be a key consideration to produce genuine development (Grieco, 1990).

Participation, in essence, is an important goal in community development. In other words, the involvement of community becomes imperative in development activities. Starting from where the people are, what they know, what they have, and what they want to be would facilitate the rapid dissemination of technology of the introduction of a new project. Thus, being aware of and involved in development activities, people become committed to work in assuring the sustainability of the project.

In fact, the concept of community participation, in one hand, is being used so often and refers to various things, which almost meaningless when it comes to implementation. The distribution between participation for efficiency (a means) and participation for empowerment (as a goal) is useful by way of initial ordering. Empowerment of people and communities, on the other hand, is advocated which refers to : increase decision-making and countervailing power, more assets, and improve access to resources and institution (de Wit, 2000).

Designed Analysis

This article is organized attempt to reviewing some literatures as well as analyzing data and information. Those were gathered from several sources related to participation and empowerment issues particularly in terms of its concepts and implementations in the IPM-SECP.

Results and Discussions

Concept of Participation

There are often contradictory assumptions about the definition of participation. It may vary from "the development of consciousness and organization through the experience of involvement in a government project" to "the consultation of settlement organizations in the initial decisions about project and objectives" (Nientied, et al, 1990).

The word participation has a wide variety of potency and it is used to describe a wide range of situations (Indonesian National IPM Program, 1998). In development activities, the word participation is referred to power and power relationships. A participatory approach to learning should describe activities in which at least some power is shared among facilitators and learners or those who would potentially gain benefit from the activities. Participation describes power relationships that tend to "form" through "representation" to "control".

"From" describes the situation in which a potential beneficiary of the activity merely attend the activity. "Representation" occurs when there is some sharing of power among some potential beneficiaries and activity implementers. Meanwhile, "control" defines the kind of participation in which potential beneficiaries take decisions in planning, implementation, evaluation, and the direction of benefits (such as who benefits) of an activity.

Clearly, much more information is needed if we are to know "who" participate, "what" participation entails, and "how" it can be promoted. To obtain a better understanding of these wider issues, it is necessary to transcend the formal definition and to review literature in a little more detail (Midgley, 1986). One definition of this kind was formulated by a group of experts appointed to discuss community action in popular participation. It defined participation (United Nation, 1982 in Midgley, 1983) as: "the creation of opportunities to enable all members of a community and the larger society to actively contribute and influence the development process and to share equitably in fruits of development".

Ford (1985) as cited by Cruz (1992) advocates that a broad-based people's participation at the local level is

the key to articulating the aspirations and mobilizing people's energies. Participation services a mechanism for mobilizing resources, labor, ideas, and motivation for promoting community welfare and development. Organization is one way of restoring balance among the various social, economic, cultural, and political forces, and resources in a community. Unity and organization would provide the people with the vehicle to be heard and to exert pressure to achieve their needs. Participation focuses on the following aspects : (1) social, economic, political, and cultural issues; (2) good mechanism/structures to operationalize the process from the lowest level to the highest levels of government; (3) process of raising critical consciousness of people about their problems; (4) participatory research; (5) proactive and reactive; and (6) communication and access to information.

Theoretically, the most effective channels for people participation and the organization set up for this purpose (Talatayod, 1980). Participation could be observed at the local level in the following types (Castillo, 1988):

1. Membership in community organizations set up for the mobilization of the community vis-à-vis agency program.
2. Contribution of personal labor, materials, and monetary assistance to infrastructure, health, and sanitation projects, and so forth.
3. Patronage of agency-initiated institutions such as nursery schools, credit and customer cooperatives.

4. Attendance at community assemblies called to disseminate information on program implementation plans and attendance at skills training seminar.
5. Cognitive participation in terms of being recipients of information about community activities.

Furthermore, Pretty (1995) classified participation into seven characteristics (Table 1). Interactive participation can be categorized as appropriate farmers' participation in agricultural development program/project. It is not enough to give stakeholders the opportunities to be heard, because many will not have the capacity to participate effectively. Meanwhile, Johnston (1982) divided participation into six levels of responsibilities (Table 2). The highest level of participation namely participation through creativity is typically appropriate to be implemented in agricultural program/project activities. In this level, farmers are participated in defining situation, determining priorities, planning, implementation, and evaluation. People are creative and their participation provides a way in which a community can eventually assume full responsibility for its own program/project.

According to Selener (1997), there are two types of participation, namely technical and political. On one hand, participation of a technical nature can be manipulated by power holders to fulfill their own needs. Thus, it may not promote empowerment or social

Table 1.
Typology and Characteristic of Participation

Typology	Characteristic
1. Passive participation	People participate by being told what is going to happen/happened. The information being shared belongs to the external organization.
2. Participation in information giving	People participate by answering questions posed by extractive researchers using techniques such as questionnaires. The findings are not shared or checked for accuracy, no influence from participants.
3. Consultative participation	People participate by being consulted and external agents listen to views. The agents define both the problems and solutions, and may modify these in the light of the people's responses.
4. Participation for material incentive	People participate by providing resources such as labor, cash or material incentives. They are not involved in the experimentation or the process of learning, no stake in prolonging activities when the incentives end.
5. Functional participation	People participate by forming groups to meet predetermined objectives related to the project that can involve external organizations, the involvement is generally after the major planning decision have been made.
6. Interactive participation	People participate in joint analysis that leads to actions, new groups or strengthening existing ones. Tends to involve interdisciplinary methods and make use of structured learning processes. The groups take control over local decisions and people have a stake in maintaining structures and practices.
7. Self-mobilization	People participate by taking initiatives independent of external organizations to change systems. They develop the contacts with external agents for resources and advice they need and retain control of how the resources are used.

Source : Pretty, 1995

Table 2.
Level of Participation and Responsibility

Level of Participation	Responsibility
1. Participation in response to an order or to force	Response to coercion by an authoritative figure is the lowest level of participation. The people are denied share in decision-making, merely complying with pre-determined plans by providing material, labor, even vote or acceptance or specific condition.
2. Voluntary participation stimulated by a reward and prompted by awareness	People can use their own discretion and make the choice of attending the activity or not.
3. Participation by giving suggestions and making criticisms aimed at improvement of an activity	People assume a critical attitude and are prepared to make suggestions for improvement and changes. Given the opportunity, they are prepared to participate in a more responsible way.
4. Participation by taking initiative	People take the initiative in promoting a new activity and assume responsibility for carrying it through successfully.
5. Participation through creativity	People are involved in defining their situation, determining priorities, planning, implementation and evaluation. People are creative and their participation provides a way in which a community can eventually assume full responsibility for its own program.

Source: Johnston, 1982

change. On the other hand, participation of a political nature means acquiring power and taking greater control of a situation. It is accomplished by increasing options for action, autonomy, and reflection especially through the development and strengthening of institution.

Conclusively, there are four main reasons why participation is necessary to come up with successful programs (Krishna and Lovell, 1985). First is to improve the development plans in general and specific priorities and projects in particular. The second reason is that programs and projects cannot be implemented if they do not suit the people or are not properly conceived. Third is sustainability. Lastly is to increase equity. Hence, one of the kinds of participation mechanism categories to achieve the success of participation is a rule for beneficiary participation in a specific project.

Concept of Empowerment

Similar to participation, the word "empowerment" has several meanings and uses (Checkoway, 1995). Empowerment is viewed as a process in which person or community gives or gets power from another since power originates outside the person or community who gives or gets it from another.

Empowerment can be viewed as a multilevel process, which includes individual involvement, organizational development, and community change. Individual involvement refers to participation of a person in decision-making. Community change refers to the impact of involvement in the community.

Organizational development refers to the structures, which mediate between the individual and community and facilitate the collective action that lies at the heart of community change (Checkoway, 1995).

Morales (1990) defined empowerment as the long process of transferring economic and social power from one to another and/or the creation of new centers of socio-economic power complementary to, or in competition with the traditional centers. In other words, it is the process of shifting the balance of social power from one social class or group of classes to another, which may include the shift in economic or political importance between areas or regions, resulting in a new power configuration.

At the community level, there is separation into two distinct approaches, namely: (1) community development movement; and (2) community involvement through "conscientization" with latter replaced in time by the English term "empowerment". Conscientization started from the existence of socio-economic inequalities, the generation of these by the economic system, and their underpinning by the state, from which the poor and exploited needed to be helped to become conscious of their situation. Meanwhile, empowerment is defined as representing the organized efforts of disempowered groups to increase control over resources and regulative institution (Abbot, 1995).

Cruz (1992) stated that community empowerment means a sustained process in which people through collective action and reflection gained a deep

understanding of the causes of their powerlessness and the confidence in them to take responsibility for their own development, self-reliance and resource management. Power, based on organizations, would help in realignment of economic and political institutions at the community level as democratic tradition where people do the decision-making.

Navarro (1986) mentioned that the value of empowerment through viable and effective participation of community organization stem from the increases capability of the disadvantages and poorer members of the rural community of influence decisions affecting their lives and welfare. Genuine development cannot take place so long as the rural development strategy falls short of empowering the poorer members of society.

To achieve empowerment, the process usually adopted is to help individuals from a group with a carefully considered from organization. This is set-up with long-term processes of development in view since it is through the group that people gain confidence in themselves, develop solidarity, and work out how to act collectively. Part of the process of creating solidarity is through discussion of the linkages impinging on their lives, such have made them practically and economically dependent. It is from this understanding that the group can devise strategies to break the chain and create "space" for an alternative development under their own control. This may include economic activities where the surpluses are not extracted but are used by those who produce them in a sustainable development (Wright, 1990)

Concept of IPM

IPM has different meaning to different people. Perhaps it is one of the most overused and misused concepts in crop production. It is quite common to hear IPM used interchangeably with "integrated pesticide management". However, IPM has also been referred to as a strategy that avoids the use of pesticides (Velasco, 2000). Among other definitions of the IPM are:

1. "IPM is a pest management system that, in the context of the associated environment and the population dynamics of the pest species, utilizes all suitable techniques and methods in as compatible a manners as possible, and maintains the pest populations at levels below those causing economically unacceptable damage or loss" (FAO, 2000).
2. "IPM is an ecological based pest control strategy that relies heavily on natural mortality factors such as natural enemies and weather and seeks out control tactics that disrupt these factors as little as possible" (Flint and Bosch, 1981 in Fliert, 1993).
3. "IPM is a pest management strategy that builds on biological control as its foundation. In practice, it

develops farmers' ability to make critical and informed decisions that render production systems more productive, profitable, and sustainable. It thus makes farmers experts in their own fields" (SEAMEO SEARCA, 1999b).

Fliert (1993) stressed that the important point in the definition of Flint and Bosch given above is the ecological approach of pest management and the integrated manner of applying the control techniques available. A consequence of these two aspects in that pesticide use is allowed as a control measure, but only a last resort and using application methods least disruptive to natural environment. IPM seeks to consolidate the achievements of the Green Revolution, but to remove its negative consequences by reducing cost of production and helping farmers become better managers. It seeks to incorporate natural processes into farming, and reduce off-farm inputs, leading to a more profitable and efficient production, and to better human and environmental health.

Fliert (1993) added that IPM relies on farmer's increase knowledge, active use of improved genetic and biological potential of cultivars, and in some areas, to better rotation. Pest control decision-making is based on frequent and systemic field monitoring considering pest populations, natural control factors, crop status, and climatic condition. Measure preventing the development of pest populations, such as the use of resistant varieties and cultural practice, are an important premise in IPM.

IPM is also a combination of management strategies that farmers use to minimize the impact of pest and disease of crops (SEAMEO SEARCA, 1999a). In addition, IPM is the use of multidisciplinary methodologies to develop agro-ecosystem management strategies that are practical, effective, economical, and protective of both public health and the environment (Rola and Pingali, 1993).

Eventually, IPM is viewed as a strategy for sustainable agricultural development (FAO, 2000). It enhances farmers' capacities as they: (1) act upon their own initiative and analysis; (2) identify and resolve relevant problems; (3) conduct their own local IPM programs that include research and educational activities; (4) elicit the support of local institutions; (5) establish or adapt local organization that enhance the influence of farmers in local decision-making; (6) create opportunities for all members in their communities to develop themselves and/or benefit from their IPM activities; and (7) promote a sustainable agricultural system.

Participation and Empowerment in IPM

No pest management program would be successful without participation by the farmers (Rola and Pingali, 1993). Farmers' indigenous practices as well as

institutional and structural arrangements should be considered when planning any pest management program. Therefore, participation is the key word in the implementation of any IPM program.

Generally, IPM has been started with the Farmer's Field School (FFS), which built farmer skills in making decisions and making actions based on an open discussion of ideas (Ooi, 1998). Thus, the heart of IPM is FFS defined as a "school without wall" bringing farmers together to undergo an intensive training over the entire life cycle of the crops (SEAMEO SEARCA, 1998). The goal of the IPM-FFS approach is to strengthen the process of knowledge generation and knowledge dissemination within and amongst the farm community (ADB, 1994). It is conducted based on factors such as key growth stages of the crops, local cropping patterns, and specific local problems (FAO, 2000).

The approach for IPM-FFS is developed in response to challenges, namely: (1) tropical ecology which is locally specific, resisting generalizations and blanked recommendations; and (2) need for farmers to generate their own specific processes in their own field as a basis for crop management decision for IPM to be effective and sustainable (Dilts and Hate, 2000). It is based on four "IPM principle" which provide a guide to what farmer should be able to do become of 'participation' in and FFS (FAO, 2000). The principles can be seen in Table 3.

The IPM-FFS does not focus on insect alone, it provides farmers an opportunity to learn and achieve greater control over the conditions that they face at the field level. In other words, farmers are thus empowered (FAO, 2000). Hence, the FFS participants : (1) learn and can apply ecological principles to better manage their crops within their own specific agro-ecosystem; (2) master and apply critical thinking skills at both farms and community levels; (3) acquire leadership skills that they apply in organizing collaborative to local ecosystem management; and (3) master applied discovery approaches that allow them to gather, systemize, and expand local knowledge.

The learning approach in the FFS employs a participatory learning method. The process emphasizes the taking of decision and actions based on an open discussion of ideas, which is free from the domination of any individual. The Field School process, besides its emphasis on field ecology, provides participants with an opportunity to examine human social dynamics. As a result, FFS participants do not only learn about and effect relationships that exist in the field, but they also acquire a greater understanding of human relations (Dilts and Pointius, 2000).

After participating the IPM-FFS, farmers are expected to acquire knowledge and skills and to make decisions that would translate into different use of technical knowledge, economic use of inputs and reduce production cost of production. The outcome of this empowerment must then result in an increase in yield and net profit and reduced health risks and environmental hazards (Velasco, 2000). Through the institutionalization of andragogy¹⁾ in the learning process, farmers have been empowered to make critical and informed decisions, making them experts in their own fields (SEAMEO SEARCA, 1999b).

Estate Crops IPM Program

The estate crops IPM program was implemented under the Integrated Pest Management for Smallholder Estate Crops (IPM-SECP), which covers five provinces, namely North Sumatra (cacao), Lampung (pepper), West Java (tea), East Java (coffee), and South Sulawesi (cotton). The general aim of the project is to develop the implementation of IPM as an approach in managing an economically sound pest management of estate crops (Directorate General of Estate Crops, 1998). The organizational structure of the project is shown in Figure 1.

The coffee IPM-SECP, in particular, had four stage training programs, namely : (1) training for master and IPM trainer at the provincial level; (2) training for trainer of field facilitators' level-1 (*Pemandu Lapang-1*) at the provincial level; (3) training for trainer of field facilitators' level-2 (*Pemandu Lapang-2*) at the district level; and (3) trainer for farmers at the field level. The objective of the training is to develop and to improve human resources particularly the facilitators and farmers in implementing IPM techniques. Hence, the fundamental nature of the project is participation and empowerment through training activities.

Farmer's Participation in the Coffee IPM-SECP

The four stages in the coffee IPM-SECP activities are planning, implementation, monitoring, and evaluation (IPM-SECP of East Java, 2003). Nonetheless, participants were participated only in the planning and implementation stages. Monitoring and evaluation

¹⁾ Andragogy derived from Greek words meaning "adult-leading" that should be distinguished from the more commonly used pedagogy as "child-leading". Hence, andragogy is the process of engaging learners in the structure of the learning experience because: (1) adults need to be involved in the planning and evaluation of their instruction (self-concept and motivation to learn); (2) experience (including mistakes) provides the basis for learning activities; (3) adults are most interested in learning subjects that have immediate relevance to their job or personal life (readiness to learn); and (4) adult learning is problem-centered rather than content-oriented (Wikipedia, 2007).

activities were solely done by the project implementing unit and other related agencies (Iqbal, 2003).

Most of planning activities were done by the project, while farmers had little participation in informing the

program and its aims, selecting the participants and lands, and in farmer plotting and sample of coffee identification. In this stage, farmers only participated if they were the head of farmer's group or local model farmers (*kontak tani*).

Table 3.
The Principle of Integrated Pest Management

Principle	Description
1. Grow a healthy crops	FFS participants need to apply good agronomic practices and understand plant biology. This should help optimize their yield as well as grow plants that can withstand disease and plant infestation.
2. Conserve a healthy crops	Farmers/participants would reduce their use of insecticides. To do this, FFS participants need to understand insect population dynamic and field ecology.
3. Conduct regular field observations	IPM requires farmers the ability to regularly observe, analyze, and take informed decision based on the conditions of their agro-ecosystem.
4. Become an IPM expert	Farmers are better positioned to take decisions relevant to their fields than agricultural specialist does in a distant city. Hence, FFS participants should be able to apply IPM in their fields and also be to help others to do so

Source: FAO, 2000

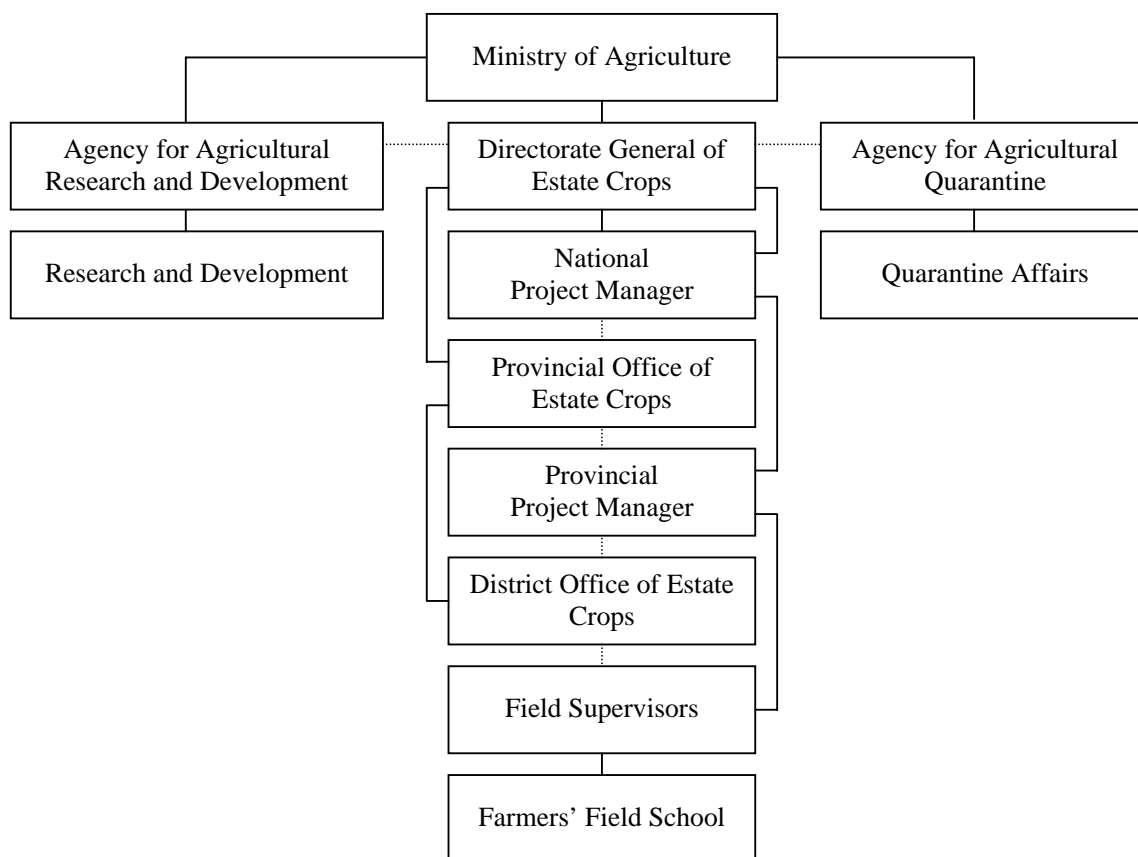


Figure 1. The Organizational Structure of the IPM-SECP

Essentially, farmers' participation in the implementation stage is related to attending in trainings carried by the project. The training for farmers were conducted and supervised by provincial and district trainers/field facilitator. The curriculum of training was designed based on the different production stages (phenology) of coffee and technical need assessment (Appendix Table 1).

It was noted that the extent of farmers' participation depends upon their interest. Although training is part of the contract under the project, the participants were more interested in the subjects that they perceived more practical and would benefit them. Overall, it was found that farmers had a high extent of participation in the various activities and practices of training carried out by the coffee IPM-SECP (Appendix Table 2).

Farmer's Empowerment in the Coffee IPM-SECP

Farmers' empowerment in IPM activities can be determined through an assessment of the social, economic, and environmental impacts such as practices among FFS farmer-participants. The social impact is reflected in the improvement of knowledge, skills, and practices. The assessment of the economic impact is anchored on increasing farm yields and profit, while environmental impact is related to the sustaining environment (SEAMEO SEARCA, 1999b).

In the case of coffee IPM-SECP, farmers would be empowered if genuine participation and commitment of the farmer-participants were present. Farmers' empowerment is an output or consequence of their participation in which they were improved in terms of social, economic/financial, and environmental awareness. The extent of farmers' empowerment in the coffee IPM-SECP can be seen in Appendix Table 3.

It can be explained that farmers were empowered since they have gained knowledge/skills from the training. This indicates by the results of pre-test and post-test of ballot box test scores as a basic of determining farmers' knowledge and skills gained by the participants, namely from 51.7 to 78.2 in Malang and 46.6 to 68.9 in Kediri (IPM-SECP of East Java, 2003).

In terms of change in practice, most activities gained by farmers from the training were implemented. The farmers followed the methods; however, they implemented these in a simple way based on their experiences. In other words, the practices were not as complicated as the coffee IPM-SECP methods. The same pattern was happened in the decision-making of the use of different practices of coffee management under the IPM-SECP.

In relation to economic/financial empowerment, total production cost was increased due to the higher

investment cost brought by the adoption of technical practices of the IPM-SECP. The productivity of the farmers coffee farm after IPM-SECP was higher as compared to before IPM-SECP. Nevertheless, the profitability was relatively increased because the price of coffee was comparatively decreased before and after IPM-SECP. Farmers perceived that the crucial factor that affects profitability is the suitable price of coffee.

With regard to environmental/ecological empowerment, farmers were quite highly conscious of the coffee IPM-SECP particularly in terms of environmental and ecological concerns. Farmers perceived that the appropriate management of IPM-SECP could improve coffee farms and maintain ecological conservation.

Conclusions and Policy Implications

Participation and empowerment are two important key words in agricultural development program. Participation is necessary to come up with successful program since it aims to improve the development plans in general and specific priorities and projects in particular. Empowerment is viewed as a process in which person or community gives or gets power from another. Participation as empowerment is an approach in which people hold complete power over and are fully in control of a program or an institution.

IPM is one of the recognized development programs that implemented through farmers' participation towards empowerment in terms of management decision in agricultural production. No pest management program would be successful without full participation by the farmers. Therefore, participation is the key word in the implementation of any IPM program.

Through participation, farmers are provided the opportunity to learn and achieve greater control over the conditions that they face at the field level. In other words, farmers are thus empowered. Nonetheless, farmers would be empowered if genuine participation and commitment of the farmer-participants were present.

In the case of coffee IPM-SECP, farmers were participated only in the planning and implementation stages. Monitoring and evaluation activities were solely done by the project implementing unit and other related agencies. The extent of farmers' participation in the planning and implementation stages was found to be moderate and high, respectively. In the planning stage, farmers only participated if they were the head of farmer's group or local model farmers (*kontak tani*). In the implementation stage, although training is part of the contract under the project, farmers were more interested in the subjects that they perceived more practical and would benefit them.

Farmers' participation in the planning stage activities of the coffee IPM SECP can be categorized as pseudo participation. In other words, it is also known as 'domestication' where power and control over a given activity are in the hands of planners, administrators, local elite, scientist, or professionals (Selener, 1997). It is achieved by using pseudo-participatory techniques to manipulate people to do work what the outsiders (or those they represent) perceive as important. However, in term of implementation stage, it was found that farmers had a high extent of participation in the various activities and practices of training carried out by the coffee IPM-SECP.

Furthermore, farmers' were empowered as a consequence of their participation in the coffee IPM-SECP training activities in terms of social aspects (knowledge and skills gained, change in practice, and decision-making). The same pattern was happened in environmental aspect. In terms of economic/financial aspects, however, farmers were considerably empowered concerning increased productivity. Total production cost was increased due to the higher investment cost brought by the adoption of technical practices of the IPM-SECP. Meanwhile, the profitability was relatively increased because the price of coffee was comparatively decreased before and after implementation of the coffee IPM-SECP.

The IPM-SECP can be considered as a valuable project since it has participated and evidently empowered farmers in managing coffee farms. However, it can be recommended that farmers should be comprehensively involved in all stages such as planning, implementation, monitoring, and evaluation, so that they would be able to get immediate genuine empowerment feedback of the project impact.

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APPENDICES

Appendix Table 1
Curriculum Training of the Coffee IPM-SECP, 2002

Topic	Description
1. Agro-ecosystem	Regular information on the environment surrounding the coffee farms, such as climate, temperature, humidity, rainfall, altitude, and other agronomic features on the coffee ecosystem
2. Anatomy of coffee	Knowledge in identifying the degree of viability of coffee seed and determining its pest and diseases, root and stem systems, and other related anatomy aspects of coffee plant
3. Soil and land management	Soil texture observation, preservation of soil and land such as terracing for conservation, and holes as place for composting (<i>rorak</i>)
4. Seedling and planting	Seedling preparation and method of planting coffee
5. Replanting, rejuvenation, and diversification	Replanting methods, rejuvenation of damaged coffee crops, and diversification of intercropping crops in coffee farming
6. Fertilizer management	Fertilizer recommendation in terms of time, dosage, and effectiveness
7. Formulating and using natural (non-chemical) fertilizer	Process of mixing organic materials and effective microorganisms (EM4)
8. Identification and control of pest, diseases, and natural enemies (beneficial insects)	Identification of the life of circle of pests, diseases, and natural enemies (beneficial insects), observing its symptoms, and method of controlling these
9. Formulating and using natural pesticide	Using natural materials such as leaves and other parts of certain crops
10. Identification and control of weeds	Identifying and controlling weeds in the coffee farming
11. Cover tree crops management	Managing cover tree crops that are beneficial for growing coffee
12. Pruning management	Pruning methods such as postharvest pruning, unproductive coffee bud pruning (<i>wiwil</i>), and cover tree crops pruning
13. Grafting management	Technical grafting such as early and sprouts grafting method
14. Taxation of production	Estimating production based on the observation of the condition of the amount of coffee seed per bunch in the productive stalk, branch, and the whole tree of sample crops in the field (the sample observation represented three levels, namely; large, moderate, and small amount of coffee seed production)
15. Harvest management	Technical harvesting (picking) in terms of timing, method, and treatment of coffee seed
16. Postharvest management	Technical treatments such as drying, processing, sorting, and grading, water management, and conversion of wet coffee seed to dried coffee seed measurement (<i>rendemen</i>)

Source : IPM-SECP of East Java, 2003

Appendix Table 2
The Extent of Farmers' Participation in the Coffee IPM-SECP in the Districts of Malang and Kediri, East Java, 2002

Description	Malang		Kediri		Average	
	\bar{X}	Description	\bar{X}	Description	\bar{X}	Description
1. Agro-ecosystem analysis	3.96	high	3.96	high	3.96	high
2. Anatomy of coffee	3.90	high	3.92	high	3.91	high
3. Soil and land management	3.68	high	3.56	high	3.62	high
4. Seedling and planting	3.54	high	3.42	high	3.48	high
5. Replanting, rejuvenation, and diversification	3.88	high	3.60	high	3.74	high
6. Fertilizer management	3.84	high	3.50	high	3.67	high
7. Formulating and using natural (non-chemical) fertilizer	3.94	high	3.72	high	3.83	high
8. Identification and control of pest, diseases, and natural enemies (beneficial insects)	3.86	high	3.74	high	3.80	high
9. Formulating and using natural pesticide	3.96	high	3.78	high	3.84	high
10. Identification and control of weeds	3.58	high	3.66	high	3.62	high
11. Cover tree crops management	3.78	high	3.60	high	3.69	high
12. Pruning management	4.02	very high	3.84	high	3.93	high
13. Grafting management	4.08	very high	4.00	high	4.04	high
14. Taxation of production	3.82	high	3.84	high	3.83	high
15. Harvest management	3.62	high	3.66	high	3.64	high
16. Postharvest management	3.60	high	3.50	high	3.55	high
Overall	3.81	high	3.71	high	3.76	high

Note: \bar{X} = weighted mean²⁾ : 0.0-1.0 (very low); 1.1-2.0 (low); 2.1-3.0 (fair); 3.1-4.0 (high); 4.1-5.0 (very high)

Source: Iqbal, 2003

²⁾ Weighted mean was measured using a point-scale (Likert's scale). Responses were scored from low to high point-scale for the positive statements, and from high to low point-scale for negative statements. The sum of the mean scale for all statements divided by the number of statements/items represents the weighted mean of the respondents' scores.

Appendix Table 3
The Extent of Farmers' Empowerment in the Coffee IPM-SECP
in the District of Malang and Kediri, East Java, 2002

Description	Malang		Kediri		Average	
	\bar{X}	Description	\bar{X}	Description	\bar{X}	Description
1. Social empowerment:						
a. Knowledge and skills gained	3.90	high	3.74	high	3.82	high
b. Change in practices	3.50	high	3.30	high	3.40	high
c. Decision-making	3.46	high	3.38	high	3.42	high
2. Economic/financial empowerment:						
a. Reduce production cost	1.76	low	1.70	low	1.73	low
b. Increased production	4.16	very high	4.04	very high	4.10	very high
c. Increased profitability	2.64	fair	2.58	fair	2.61	fair
3. Environmental empowerment (environmental awareness)	3.86	high	3.73	high	3.80	high
Overall	3.33	high	3.21	high	3.27	high

Note : \bar{X} = weighted mean²⁾ : 0.0-1.0 (very low); 1.1-2.0 (low); 2.1-3.0 (fair); 3.1-4.0 (high); 4.1-5.0 (very high)

Source: Iqbal, 2003