doi: 10.5191/jiaee.2016.23303

Policy and Practice of Participatory Extension in Indonesia: A Case Study of Extension Agents in East Java Province

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Abstract

Participatory extension approach, also called demand-driven or pluralistic extension approach is gaining widespread popularity as a democratic process of getting smallholder farmers involved in decision-making. The approach was heavily promoted in Indonesia as a law enacted in 2006. This study, conducted in 2013, almost eight years after its introduction, was carried out to determine how effective the policy was being implemented. A survey of 159 extension agents in 33 sub-regencies of Malang Regency in East Java Province in Indonesia revealed that while extension workers were familiar with the participatory extension policy and were actually practicing it they felt that it was not successful. They also felt that they the communication skills to implement it. Lastly, they felt that while social media can enhance extension communication with farmers, they needed training in the use of Information and Communication Technologies (ICTs) in extension. Our recommendation was that training extension workers in communication and development was critical to helping them undertake the complex process of implementing the participatory extension approach while at the same time facilitating integrated rural development.

Keywords: participatory extension, project implementation, extension effectiveness, integrated rural development, extension in Indonesia

Introduction

Participatory extension is a non-formal educational process whereby farmers and extension workers make joint decisions and share information (White, 1994; Leuuwis, 2000; Kroma& Wang, 2002; Leuuwis, 2004). As a policy, participatory extension is gaining popularity in developing countries as a democratic process of decision-making (Lindner, & Dolly, 2012). In practice, however, participatory extension leaves much to be desired. And the reason is not because governments find it as a threat to their authority but simply because extension workers lack the communication skills to operationalize it. This finding is apparent in our study of extension workers in Malang Regency in East Java Province of Indonesia.

Participatory extension as an international development concept has its origins in the early 1970s. Robert McNamara, then president of the World Bank in his 1973 Address to the Board of Directors of The Bank in Nairobi, Kenya, said that "no program will help small farmers if it is designed by those who have no knowledge of their problems and operated by those who have no interest in their future" (World Bank, 1975, p. 26). The result was that the international development community adopted local participation as the cornerstone for the success of the integrated rural development programs (IRDPs) introduced in the mid-1970s. The call for farmers' participation came at a time when development planners were accused of unethical practices, such as designing projects without adequate data and/or without actually involving the local people. Chambers (1983) in his book, *Rural Development: Putting the last first* accused planners of "rural development tourism," meaning that they may go to the project area but often do not talk to the people. William and Elizabeth Paddock (1973) in their book, *We don't know how: An independent audit of what they call success in foreign assistance,* cited similar examples of planners sitting in hotels in developing countries and making up project documents without stepping into the villages. Owens & Shaw (1972) and McGreevey (1980) complained of development planners using guestimates instead of collecting accurate data on which to base development plans. Therefore, the call for local participation was an attempt by the World Bank and to improve development planning, especially of the IRDPs (Hurni, 1980; World Bank, 1975).

It has taken nearly 40 years since McNamara's speech for the participatory policy to catch on in developing countries. In many African countries it was adopted in 2000 (Oakley, & Clegg, 1999). For the Government of Indonesia it came in 2006 under Law Number 16/2006, which stressed that for the extension system to be "productive, effective, and efficient" it has to be "decentralized, participatory, transparent, self-initiative, equitable in partnership . . . and accountable" (*Undang-Undang Republik Indonesia, 2006*, Article 3, point c). Participatory extension in Indonesia was almost a reversal of the "Training and Visit System" (T&V) of extension that was also promoted by the World Bank (Resosudarmo& Yamazaki, 2012). Hagmann, Chuma, Murwira, & Connolly (2000, p. ii) described the benefit of the participatory approach thus: "in top-down extension we use only one brain (the extensionist's), farmer's brains remain dormant. In participatory extension we use all brains together." Thus, it can be said that Law Number 16/2006 improved extension policy in Indonesia but what about the practice?

Theoretical Framework

Agricultural extension policy in Indonesia is constantly revised to keep pace with global development policy. For example, Indonesia adopted the Training and Visit System of Extension (T & V), introduced by the World Bank in the late

1960s. However, this model was criticized as top-down and non-participatory and, therefore, was abandoned by the Government in favor of participatory extension. In top-down extension field agents played the role of "enforcers" and farmers became essentially "robots" doing the government's bidding (Sawit & Manwan, 1991, p. 92). However, the participatory extension approach called for a decentralized extension system in which provincial, regencies, and municipalities executed extension programs based on the needs of farmers. At the regency or municipal level, public extension agents operate in sub-regencies or *kecamatan* serving farmers in almost 75,000 villages (*desa*) throughout Indonesia (Lampiran 1 Peraturan Menteri, no date).

Empowering farmers is the key to enhancing their active participation. Empowerment means agents must listen, learn, and understand farmers' needs, rather than give instructions. According to the Indonesian law, in addition to extension agents and stakeholders, such as business companies, non-profit organizations; community-based organizations (volunteer extension agents); and farmers came together to make agricultural decisions. Okorley, Grey, & Reed (2009) describe this collaborative approach as "pluralistic extension." The new law, therefore, urged a team-based approach or networking in extension (MoA, 2011; Herianto, Wastutinigsih, Foster, Rimmer, &Callinan, 2010). All told, the question is how well the participatory extension approach in Indonesia is working. Are extension agents implementing it effectively, if not, what are the barriers inhibiting effective performance? These questions formed the basis for the study. Extension agents were asked their perceptions on the effectiveness of operationalization of the new policy. A survey of 153 extension agents was conducted in the Regency of Malang in East Java Province of Indonesia. It was a census because all extension workers in the regency were interviewed.

Purpose and Objectives

The purpose of this study was to assess the perceptions of extension agents in East Java Province on the effectiveness of Indonesia's participatory extension approach. The specific objectives of the study were to examine:

1. To examine the demographic characteristics of extension agents as it relates to their ability to implement participatory extension;
2. To examine extension workers' level of familiarity with the concept of participatory extension;
3. To identify challenges extension agents faced in implementing the new extension approach;
4. To describe agents' training needs in implementing the new approach;
5. To examine extension agents' level of job satisfaction as motivation for effective participatory extension;
6. To assess extension agents' abilities to use Information and Communication Technologies (ICT) as tools for mobilizing farmers for participatory extension.

Methodology

The sampling frame comprised public extension agents in the *BadanKetahananPangandanPelaksanaPenyuluhan/BKP3* (Food Security and Extension Executive Board) in the Regency of Malang in East Java Province of Indonesia as of October 2013. The list consisted of 153 extension agents in 33 sub-regencies (*kecamatan*) of Malang Regency. Approval for the study was obtained from the head of the BKP3 for the region.

The content validity of this research instrument was evaluated by a panel of experts: one professor at The Ohio State University at the ACEL Department; one Community Development Educator at Ohio State

Extension, Miami County; the head of Indonesia's extension in Malang Regency; and one Indonesian retired extension agent. The statements in the questionnaire were modified based on the experts' feedback, while some others were added or removed. To make questions easy to understand, words, phrases, or sentenceswere altered as necessary.

Regarding internal validity threats, mortality threat was not a problem because it was a snapshot or a short time frame. Non-participants were excluded from the study, which were six retired and one sick extension agents. Location threat, the possible of place to influence respondents' responses, was not a significant issue, becausein general individuals can relatively express their thoughts openly, in conjunction with democratic era in Indonesia. Moreover, a number of respondents filled out the questionnaires privately in their offices or homes, which reduce the possibility of instrument decay, a threat where the interviewers are tired that cause instability in data recording. In addition, questions or statements in the questionnaire were made as simple as possible, using the standard Indonesian Language with short sentences to make the ideas simple. Through a field test, the instructions and statements or questionswere revised.

External validity is the "extent to which the results of a study can be generalized" (Fraenkel& Warren, 2006, p. 104), including frame error, sampling error, and selection error. Frame error, a threat caused by the failure to include all members of the population, was controlled by using the latest list of extension agents and double checked by a local extension official to check the accuracy of the names on the list of extension agents. After removing the inactive agents, the total number of extension agents was 153 personnel. Sampling error means,a threat caused by the use of a non-random sampling, was not an issue because the study used a census. Lastly, selection error, or duplication of the participants, was not found.

The data were collected in October/November 2013, using a self-administered questionnaire. Regional extension coordinators distributed and collected completed questionnaires. The SPSS Statistical Package was used to analyze the research data. Important items of statistical tables were calculated using Cronbach's Alpha to check the reliability of the items. Descriptive statistics (frequencies, mean scores, percentages, and standard deviations) were presented to illustrate the findings to the research questions and frequency tables were used to present data supporting the issues.

Findings

Findings of the study are presented according to the study objectives as follows:

Objective 1. Demographic characteristics of extension agents

Demographic factors help to examine extension agents' ability to perform their functions. For instance, age is a major determinant in the use of social media for extension as young people tend to saver it while older extension workers seem to dread it (Rogers, 2003).

Educational levels, gender, workload and access to transport affect an extension worker's performance in a variety of ways (Cho, &Bolland, 2003; Lent, Brown, & Hackett, 2005).

We found that many extension workers in the research were old, aged 50 years or older. Of the 126 agents who responded to the study 76 (60.3%) were more than 50 years old; 41 (32.5%) were between 41 and 50 years old; 2 (7.2%) were between 36 and 40 years old; and 4) only 6 (4.8%) were below 36 years of age. Almost two-thirds of the respondents were over 50 years, and nearly one-third was between 40 and 50 years. In general, those 40 years or older constituted 92.8% of the total number of respondents (Figure 1). It

will seem that the older the worker the greater the need for refresher training.

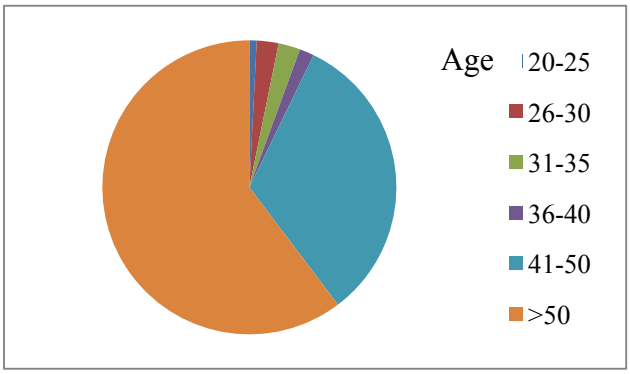

Figure1. Age of respondents

On years of extension experience, 111 (88.1%) of the 126 respondents worked in extension for more than 20 years; four (3.2%) served for 11 to 20 years (3.2%), and eleven (8.7%) served for 10 years or less. Those who served for less than 20 years were only 11.9%; the remainder (88.1%) served 20 years or more. In general, it would seem that the longer one has been in the field the greater the need for refresher training.

Regarding educational level, 95 (75.4%) had a bachelor's degrees; seven (5.6%) had a master's degrees; six (4.8%) had diplomas/certificates from three-year institutions and sixteen (12.7%) had high school education or lower. About 20% of the extension workforce had low level education, that is, with a diploma or lower. Given that Indonesia is fast becoming a newly industrializing nation, it is important that those with diploma or certificate level education must be assisted to improve their level of education in order to cope with the increasing sophistication of agricultural practices.

Lastly, we found that extension agents were diverse in terms of their specializations. Of 126 respondents, one-third (42 respondents) were agro-eco-technology specialists, that is, they had agronomy and soil science training. Twenty-two (22) respondents (17.5%) specialized in agricultural extension; twenty-one (21) respondents (16.7%) were agricultural economics/agribusiness specialists, eight respondents (6.3%) were animal science specialists, and three respondents (2.4%) were post-harvest agro-technology specialists. The remaining twenty-five (25) respondents (19.8%) were of other persuasions. Yet, all of them presumably, functioned as extension workers. For those who were not trained in extension it is not clear if they were given in-service orientation in extension principles.

In summary of Objective 1 on demographics, it would seem that extension workers in Indonesia are: advanced in age; have been on the job for a long time; and c) are diverse in their educational backgrounds.

Objective 2. Extension workers' familiarity with participatory extension

As noted earlier, participatory extension was introduced in Indonesia in 2006. Therefore, we wanted to know how many extension workers were aware or familiar with the concept. Of the 126 respondents, 75 or 59.5% were "familiar," 44 (34.9%) were "somewhat familiar," 2 or 1.6% were "not familiar," while 5 or 4.0% did not respond. Considering that the policy had been in place for almost seven years to the study it is not surprising that

over 90% were familiar or somewhat familiar with the concept.

Our next question was how many of them practiced it? Virtually almost all of them (97.6%) said they did (n=123). Only one respondent (0.8%) did not; and two others (1.6%) did not respond to the survey. Lastly, we asked if it was successful? Only 40 respondents (31.7%) described it as a success. The majority, 76 (60.3%) described it as "somewhat successful," meaning a lack of confidence on its effectiveness. About 10 (8%) others said it was not successful or did not respond to the survey. Considering that this study was conducted eight years into the policy it is disturbing that only less than 32% of respondents could say with certainty that the approach was a success.

On the role of extension, respondents said: 1) helping smallholder farmers adopt innovations (100% of respondents), 2) promoting sustainable agriculture (97.6%, *n*=126); 3) improving rural livelihood (97.6%, *n*=126); 4) promoting climate change awareness (96.8%, *n*=126); and 5) promoting smallholder farmers' participation in decision-making (96.0%, *n*=124). Other goals of extension identified by respondents were: 1) mobilizing the youth for agricultural and rural development (93.7%, *n*=126); 2) facilitating integrated rural development (88.8%, *n*=125); 3) facilitating linkages between farmers and research centers (90.4%, *n*=125); 4) helping farmers gain access to credit or markets (87.3%, *n*=126); and 5) promoting gender equity.

Next, asked whether extension agents achieved their goals, the results were mixed: only 37.9% of respondents said extension goals were being achieved; 73.4% (*n*=124) said promoting smallholder farmers' participation in decision-making was achieved; 70.2% (*n*=124) helping smallholder farmers to adopt innovations was being achieved; and 70.2% (*n*=124) said facilitating integrated rural development was achieved. At the low end, only 42.4% (*n*=125) said helping farmers gain access to credit/market was being achieved; 44.8% (*n*=116) said promoting coordination across departments in the Ministry of Agriculture was achieved; and 59.0% (*n*=117) said collaborating with NGOs was being achieved.

Overall, extension agents expressed their views on extension, development, and communication as shown in Table 1. A Likert scale was employed, ranging from "1" being "*Strongly disagree* (SD)" to "5" being '*Strongly agree* (SA)."

Table 1
Levels of agreement on issues of extension, development, and communication

Views on extension, development and communication		Responses (%)				
	N	*Strongly Disagree*	*Disagree*	*Neutral*	*Agree*	*Strongly agree*
1. Communication is necessary for building linkages.	124	0.0	0.0	4.8	62.1	33.1
2. I am informed when extension methods are changed.	124	0.8	4.0	11.3	62.1	21.8
3. I was trained how to implement participatory extension.	126	3.2	11.1	58.7	58.7	27.0
4. Extension workers lack the training to cope with the complexity of the development process.	124	2.4	12.1	12.9	58.1	14.5
5. I was trained in poverty reduction strategy programming	122	1.6	12.3	18.0	57.4	10.7
6. I was trained in sustainable agriculture.	125	0.0	6.4	12.0	56.8	24.8
7. I was trained how to implement pluralistic extension.	125	1.6	6.4	28.0	56.8	7.2
8. Communication is necessary for participation of farmers.	126	0.0	2.4	4.8	55.6	37.3
9. Extension workers need training in development.	125	0.0	0.0	10.4	54.4	35.2
10. I was trained in integrated rural development implementation.	125	0.8	15.2	16.8	53.6	13.6
11. Community-driven development is a success in my area.	122	0.0	5.7	53.8	53.3	8.2
12. Extension workers get adequate training in communication.	124	0.8	10.5	16.9	47.6	24.2
13. The pluralistic extension system was successful in my country.	118	0.0	11.0	64.4	22.9	1.7
14. NGO extension is more effective than public sector extension.	126	17.5	59.5	15.1	15.1	7.1

Scale: 1=*Strongly disagree* to 5=*Strongly agree*

Four significant points are to be made from the study. First, #13 shows that the vast majority of respondents 64.4% were neutral on whether the pluralistic extension approach was a success. In fact, only about 25% agreed or strongly agreed that it was a success. Second, #9 shows that almost 90% agreed or strongly agreed that they needed training in development. This was supported by #4 where a large number of respondents agreed that they lacked training on how to cope with the complexities of the development process. Third, in #1 and #8, extension workers were resolute about the importance of communication for building linkages and promoting farmers' participation. However, there appears to be a

contradiction in #12 when the majority of respondents said they get adequate training in communication. This is, perhaps, a reaction to the fact that many respondents would not often point out their weaknesses. Item #14 also shows that extension workers disagreed or strongly disagreed that extension workers in Non-Governmental Organizations were more effective that extension workers in the public sector. Overall, the table shows a strong need for communication and development training for extension workers.

Objective 3. Extension agents' training needs in participatory extension

The third objective of this study was to describe extension agents' training needs. This section was divided into: training experience; skills of facilitation; knowledge and skills required. On training experience, the aspects to be examined were: training engagement, the subjects or topics of training, subjects and usefulness of training, and the needs for training areas. Concerning the training engagement, of the 126 respondents, 106 (84.1%) reported that they experienced in-service training. Regarding the quantity of training, within one year ahead of the survey, 55 (43%) attended one training activity; 32 (25.4%) attended twice; and only 21 (16.7%) attended three to five times. There were 18 (14.3%) respondents who did not respond. Thus, the majority of agents received more than one training activity in the year before the study.

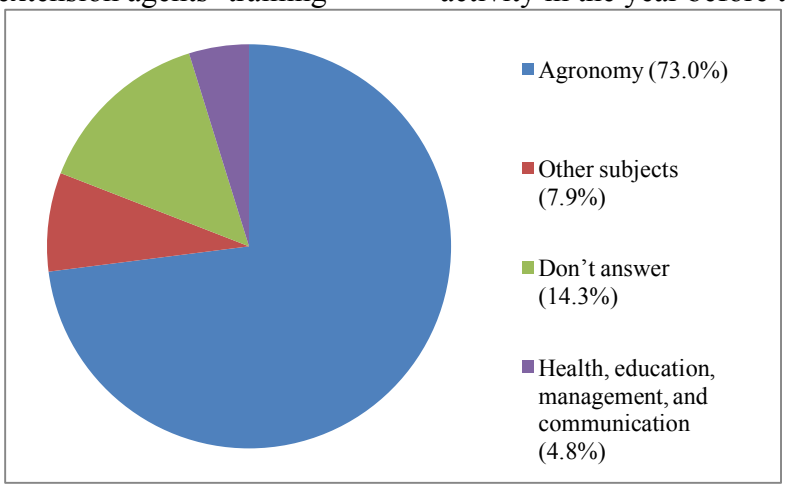

Figure 2. Subjects of training received by extension agents

Regarding the subjects and usefulness of the training, almost three-fourths of extension agents (73.0%, *n*=92) were trained in agronomy. Others were trained in various subjects: health, education, management, and communication. The majority of respondents (89.7%) found that the trainings was useful. The training received by the agents was primarily on agronomic aspects, indicating that the training developers may be overlooking the non-technical (social) aspects (Figure 3). From the 126 respondents, almost all of them (95.2%, *n*=120) needed more in-service training on a yearly basis to enhance their job performance. The most needed areas of training were: a) the use of new media/information technology (cited by 75.4% respondents,

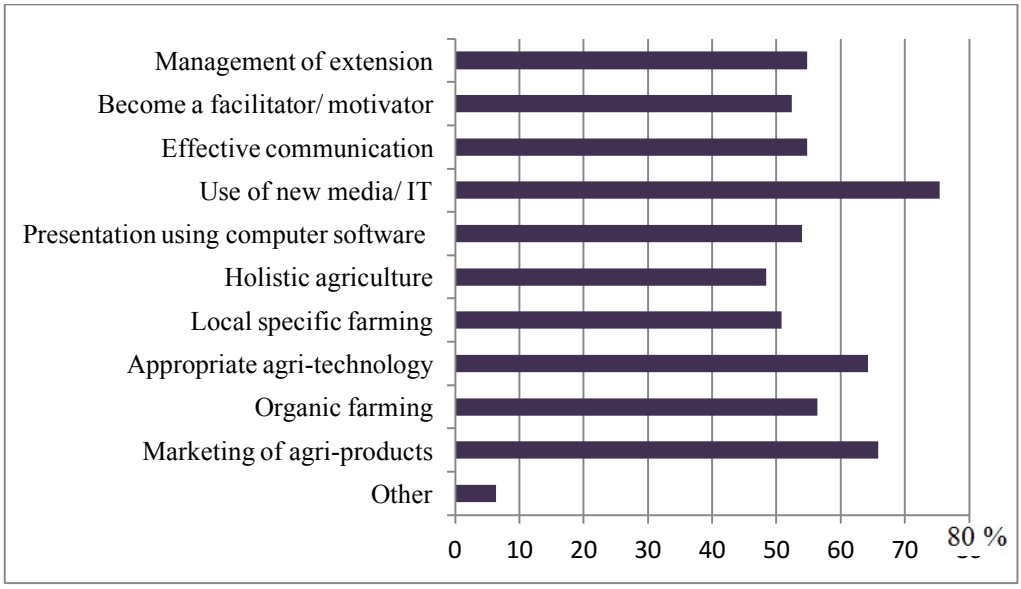

Figure 3. Requested in-service training for extension agents. Percentage is not equivalent 100% as respondents could cite more than one problem.

n=95), b) marketing of agricultural products (65.87%, *n*=83), c) appropriate agricultural technology (64.29%, *n*=81), and d) organic farming (see Figure 4). The data showed that the agents needed subjects relating to contemporary and post-harvest agriculture. It was significant that use of mass media technologies stood out as an important training needs area.

Objective 4. Extension agents' level of job satisfaction

Job satisfaction is an important measure of highly motivated workers (Lindner,1998; Ogunjinmi, Umunna, & Ogunjinmi,2008). Job satisfaction not only measures how satisfied workers are with respect to benefits but it also shows how pleased workers are with the training they received to effectively perform their duties. Respondents were asked their levels of satisfaction with respect to items in table 5. A Likert scale showing "1" = *Very dissatisfied* to "5" = *Very satisfied* was used to gauge extension workers' level of job satisfaction. Extension workers were most "satisfied" or "very satisfied"

Table 2
Level of job satisfaction

Issues of extension	*N*	Response (%)				
		Very dis-satisfied	*Dis-satisfied*	*Neutral*	*Satisfied*	*Very satisfied*
1. Cooperation from other extension agents.	126	0.8	2.4	14.3	65.9	16.7
2. My work as an extension agent.	126	0.0	2.4	15.1	64.3	18.3
3. My knowledge of participatory extension.	124	0.0	8.9	27.4	58.9	4.8
4. Cooperation from volunteers.	125	0.0	8.8	26.4	56.8	8.0
5. Cooperation from other governmental agencies.	126	0.0	14.3	36.5	46.0	3.2
6. Cooperation from research institutions.	126	0.8	16.7	31.0	45.2	6.3
7. Cooperation from input providers.	126	0.8	23.0	28.6	43.7	4.0
8. My training to become a development facilitator.	126	3.2	31.7	23.0	38.9	3.2
9. My training in communication.	126	0.0	24.6	36.5	33.3	5.6
10. Ability to use information and communication technologies.	126	1.6	28.6	34.1	33.3	2.4
11. Opportunity for higher education.	122	2.5	28.7	68.9	25.4	5.7
12. Cooperation from universities.	125	3.2	18.4	48.8	22.4	7.2
13. My knowledge of decentralization in Indonesia.	125	1.6	34.4	43.2	20.8	0.0
14. Opportunity for short-term training.	126	2.4	43.7	31.0	18.3	4.8
15. My salary.	126	10.3	27.8	39.7	17.5	4.8
16. Cooperation from non-profit organizations.	125	3.2	46.4	38.4	10.4	1.6

Scale: 1 = *Strongly dissatisfied* to 5 = *Strongly satisfied*

with items #1 & 2: a) the cooperation they receive from other extension workers and b) in their role as extension workers (S=64.3%, VS=18.3%, *n*=126); and b) the cooperation from other extension agents (S=65.9%, VS=16.7%, *n*=126). However, they were least satisfied with: a) ability to use information and communication technologies (ICT) (D=28.6%, Ne=34.1%, *n*=126); 2) opportunity for higher education (D=28.7%, Ne=68.9%, *n*=122); 3) knowledge of decentralization in Indonesia (D=34.4%, Ne=43.2%, *n*=125); 4) opportunity for short-term training (D=43.7%, Ne=31.0%, *n*=126); 5) salary (D=27.8%, Ne=39.7%, *n*=126); 6) cooperation from non-profit organizations (D=46.4%, Ne=38.4%, *n*=125); and 7) training in communication (D=24.6%, Ne=36.5%; *n*=126) (see Table 7).

Overall, the extension agents were somewhat satisfied with implementation of the new extension approach and the cooperation they received from external organizations, except with the NGOs.

Objective 5. Extension workers' use of Information and Communication Technologies

Information and communication technologies (ICTs), such as cell phones, the Internet and the World Wide Web (WWW) are being used increasingly as extension tools for reaching wider extension audiences and reducing the cost of travel for extension workers (Annor-Frempong et al., 2006). Respondents were asked if they owned or had access to ICTs. The highest cases of ICT possession/access were mobile phones, computers, and home phones. Allrespondents (*n*=121) possessed mobile phones. Also, 84 (or 80%) out of 106 respondents had personal computers.

Table 3
Information and communication technology ownership/usage for extension

Types of information and communication technology	*N*	Ownership or usage			
		Frequency (f)		Percentage (%)	
		Yes	*No*	*Yes*	*No*
1. Mobile phone.	121	121	0	100.0	0.00
2. Computer (Desktop/ Laptop/ Notebook/ iPad).	106	84	22	79.2	20.8
3. Home phone (landline).	108	57	51	52.8	47.2
4. Software for presentation (e.g. Power Point).	109	52	57	47.4	52.3
5. Personal Internet access.	103	43	60	41.7	58.3
6. Word processors (e.g. Word).	98	36	62	36.7	63.3
7. Internet in cyber café.	101	21	80	20.8	79.2
8. Internet in the office.	106	18	88	17.0	83.0

However, less than 50%, 43 out of 103 respondents had access to the Internet (Table 4). The percentages of the respondents who had Internet access in the office and in cyber cafés were significantly lower, 17.0% (18 of 106) and 20.8% (21 of 101) respectively. In addition, slightly more than a half (52.8%, *n*=57) of 108 who responded, possessed landline telephones, which are viewed as old communication technologies. Thus, in Indonesia, old and new technologies co-exist side-by-side.

Extension agents were asked how often they used ICTs in extension. Mobile phone owners, 95.8% of respondents, said they used it very often as an extension tool (114 of 119). Computer owners, 71.5% of respondents (65 of 91) said they used it on a weekly basis for extension; while landline telephone owners, 64.5 % (40 of 62 respondents) used it as a general extension tool. Thus, the most regular used of ICT for extension was mobile phones. Therefore, it is safe to say that the cell phone has become a popular extension tool in Indonesia.

Another question we asked respondents was their access or use of social media. Forty-five out of 107 respondents (51.3%) accessed information on their local extension agencies' websites; 49 of 108 (45.4%) used the Ministry of Agriculture's website; 36 of 108 respondents (36.1%) used Email; and 35 of 114 (30.7%) used Facebook. The percentage of extension agents who used e-agricultural news, You-tube, Google Talk, Skype, Blog, Twitter, e-discussion or newsgroup, and LinkedIn was very limited (less than 30%). These findings suggest that, overall, social media, unlike

telephones, are not common tools for extension although the potential for them to become an extension tool is high.

Objective 6. Extension facilitation

Facilitation is defined as the skill required to manage a group activity that is conducted by a neutral person who has limited authority while assisting the group make decisions and improve its effectiveness (Schwarz, 2002). The extension agent as facilitator, thus, is one who helps farmers achieve their aspirations whilst also coordinating the activities of stakeholders, such as local fertilizer and seed companies who serve these farmers (Preissing, 2009). Leeuwis (2004) described stakeholders as advocacy groups, organizations, or other persons with interest in issues related to agricultural and rural development. Thus extension facilitation is the ability of the extension worker to mobilize all these stakeholders in the interests of farmers and the stakeholders themselves.

Table 4
Extension agents' perceptions of participation of farmers

Issues of farmer participation in extension	*N*	Response (%)				
		Strongly disagree	*Disagree*	*Neutral*	*Agree*	*Strongly agree*
1. Farmers should be involved in diagnosing farming problems.	125	0.0	0.0	0.8	53.6	45.6
2. Farmers need to be informed of key development decisions in their areas.	125	0.0	0.0	3.2	58.4	38.4
3. Participation can enhance community support for a program.	126	0.0	0.8	3.2	62.7	33.3
4. Farmers should freely express their needs.	125	0.8	0.8	6.4	60.0	32.0
5. Participation enhances farmers' self-esteem.	126	0.0	0.8	8.7	60.3	30.2
6. Farmers should participate in planning development projects.	126	0.0	1.6	13.5	64.3	20.6
7. Participation can increase farmers' income.	125	0.0	0.8	17.6	69.6	12.0
8. Farmers should participate in evaluating development projects.	126	0.0	3.2	26.2	55.6	15.1
9. In general, farmers' participation is working well in this region.	126	0.8	10.3	28.6	57.9	2.4
10. Some extension workers view participation as farmers questioning their authority.	126	11.1	61.1	17.5	9.5	0.8
11. I don't need training on how to involve farmers in extension program planning.	126	18.3	63.5	12.7	2.4	3.2

Scale: 1= *Strongly disagree* to 5= *Strongly agree*

We asked extension workers about their level of skill in mobilizing or facilitating: a) farmer groups, b) stakeholders, and c) an assessment of their overall ability to facilitate extension. With respect to the facilitation of farmer groups we used a Likert scale ranging from "1" (*Strongly disagree*/SD) to "5" (*Strongly agree*/SA). Table 4 indicates there was very positive agreement that farmers must participate in extension activities (more than 90% combining "*Agree*" and "*Strongly Agree*"). What is significant about the table is that whilst there is widespread agreement that participation is highly important, extension workers overwhelmingly agreed that they lacked the skills for facilitation. Only 5.4% of respondents "agreed/or strongly agreed" that they do not need training on how to involve farmers in extension program planning. There was also overwhelming agreement that participation was a

necessary extension strategy. It was not to be perceived as questioning the extension agent's authority. Lastly, only 62% of respondent felt farmers' participation was working well in their districts.

With respect to the facilitation of stakeholders extension workers were agreed that: 1) joint management with research institutions helped farmers adopt new technology; 2) partnership with other government agencies was necessary to get support for programs; 3) partnership with youth organizations was necessary for getting youth interested in agriculture; 4) partnership with local leaders is necessary to influence farmers' acceptance of new programs; and 5) project cooperation is valuable for combining ideas from different organizations.

The third part of this objective assessed respondents' skills in facilitating farmers and stakeholders meetings. Seventeen facilitation skills were measured (Table 6). Extension workers were asked to indicate their ability to facilitate at three levels: "No ability" (NA), "Moderate ability" (MA), and "Good ability" (GA).

Table 5
Perceived skill levels on facilitating farmers

Aspects of skills	*N*	Responses (%) *No ability*	*Moderate ability*	*Good ability*
1. Helping farmers to develop planning based on their aspirations.	124	4.8	78.2	16.9
2. Encouraging farmers to discuss their problems through group discussions.	125	0.0	76.0	15.2
3. Encouraging farmers to take initiatives in making decisions on projects.	125	8.8	76.0	15.2
4. Helping farmers to organize local projects rather than directed by extension workers.	125	10.4	75.2	14.8
5. Helping farmers to market their products.	121	21.5	71.9	6.6
6. Helping farmers to share their experience with the wider community (field days).	124	13.7	70.2	16.1
7. Helping farmers to learn from innovative farmers to solve problems.	125	0.8	69.6	29.6
8. Helping farmers to preserve traditional communication systems in extension.	114	21.1	69.3	9.6
9. Helping farmers to incorporate local knowledge in a project.	125	22.4	68.8	8.8
10. Helping farmers to get information they need such as weather prediction.	125	23.2	68.0	8.8
11. Connecting farmers with researchers.	123	21.1	65.9	13.0
12. Helping farmers to implement local experimentation based on their needs.	125	6.4	64.8	28.8
13. Rendering community leadership.	125	24.0	63.2	12.8
14. Helping farmers to manage farmer centers (agribusiness consulting clinics).	123	37.4	57.7	4.9
15. Helping farmers to discuss agricultural issues on local radio stations.	123	49.6	48.8	1.6
16. Helping farmers to use the Internet.	122	57.4	39.3	3.3
17. Helping farmers to discuss agricultural issues on local television stations.	121	78.5	19.8	1.7

Scale: 1=*No ability* 3=*Good ability*

The survey results showed that, overall, the extension agents' levels of facilitation skills were "No" to "Moderate" ability, implying that they need training. In particular, the areas they need more training are in the use of mass or social media for extension, namely: a) helping farmers to discuss agricultural issues on local radio stations (MA=48.8%, NA=49.6%; *n*=123); b) helping farmers to use the Internet (MA=39.3%, NA=57.4%; *n*=122); and 3) helping farmers to discuss agricultural issues on local television stations (MA=19.8%, NA=78.5.6%; *n*=125).

Objective 7. Extension workers training needs in development and communication

Agunga (2012) and Fraser and Villet (1994) contend that the ultimate function of extension is promoting development through the effective use of communication skills for promoting participation, integration and capacity building. Rondinelli (1993) also stressed the need for extension workers to understand development, to be effective facilitators. Therefore, the final objective of this study was to measure extension agents' knowledge and skills in development and communication, otherwise known as "Communication for Development" (C4D). To the left, they were asked to indicate communication/development knowledge/skills that were important using three scales: *Lowly important*=1, *Somewhat important*/SI=2, and *Highly important*/HI=3). Then to the right they were asked to indicate abilities or proficiencies in carrying out these activities/strategies. The proficiency levels were: 1 for *Low proficiency*, 2 for *Somewhat proficiency*/SP) and 3 for *High proficiency*/HP. Table 7 shows the responses.

Table 6
Level of importance and proficiency in communication and development

N	Level of importance (%)			Training needs in communication and development	*N*	Level of proficiency (%)		
	Lowly important	*Some what important*	*Highly important*			*Lowly proficient*	*Some what proficient*	*Highly proficient*
12	0.8	9.0	90.2	Integrated rural development.	121	10.7	76.0	13.2
12	1.6	8.2	90.2	Involving the community in extension.	120	3.3	72.5	24.2
12	1.6	9.0	89.3	Linkage skills.	120	8.3	65.8	25.8
12	0.8	12.3	86.9	A system view of extension.	120	7.5	75.0	17.5
12	2.5	11.5	86.1	Listening skills.	122	0.8	68.9	30.0
12	1.6	15.6	82.8	Leadership skills.	121	8.3	75.2	16.5
12	2.5	15.7	81.8	Computer literacy skills.	122	50.0	41.0	9.0
12	2.5	20.5	77.0	Internet operation skills.	121	51.2	43.0	5.8
12	3.3	23.1	73.6	Lobbying skills.	122	27.0	54.1	18.9
12	4.9	23.0	72.1	Presentation using software (e.g. Power Point).	122	45.9	48.4	5.7
12	0.8	33.6	65.6	Grant writing skills.	121	19.0	71.1	9.9
12	2.5	31.1	66.4	Promoting gender inequity.	121	19.8	68.6	11.6
12	2.5	32.2	65.3	Supervision skills.	121	13.2	66.1	20.7
12	7.4	33.6	59.0	Fundraising skills.	120	31.7	57.5	10.8
12	5.7	41.0	53.3	Advocacy skills.	120	38.3	52.5	9.2

On importance, the skills identified as most important or highly important (HI) were: 1) integrated rural development (HI=90.2%, *n*=122); 2) involving the community in extension (HI=90.2%, *n*=122); 3) linkage skills (HI=89.3%, *n*=122); 4) a systems view of extension (HI = 86.9, *n*=122); 5) listening skills (HI=86.1%, *n*=122); and 6) leadership skills (HI=82.8%, *n*=122). Computer literacy skills was also ranked as highly important (HI=81.8, *n*=121). On their level of proficiency to carry out these activities the data showed that respondents had moderate to low ability. Overall, extension workers expressed "*low*" to "*somewhat*" proficiency in the following areas: a)

Computer literacy skills, Internet operation skills lobbying skills, and presentation using software (e.g. Power Point).

Discussion, Conclusion, Recommendations, and Implications

As noted in our introduction, the participatory extension approach was hailed with excitement, especially in Indonesia. However, as we have shown in the study, the implementation of the participatory extension approach in Indonesia leaves much to be desired. Our study of extension in East Java, Indonesia, though not generalizable to the entire country, has revealed serious problems with the approach. First, the demographic data showed that many extension workers were advanced in age, 50 years and older, and may not be familiar with current extension issues. Second, many of them were trained in various disciplines other than extension and, therefore, may not be grounded in extension principles and methodology. Third, extension workers showed low job satisfaction, a mode that is also common in other developing countries (Ganpat, Webster, & Narine,2014); in the case if Indonesia, it is particularly in terms of their weak training in communication and community mobilization. Lastly, while many extension workers in Indonesia have access to cell phones and social media they express great need of training on how to apply them in extension.

Based on the discussion, it can be concluded that effective participatory extension requires knowledge and skills in communication and development—areas extension workers have expressed a need for training. Our recommendation is that in each country the training needs of extension workers should be assessed and addressed. This is especially important because extension functions, such as promoting integrated rural development programs, are becoming increasingly sophisticated, hence they need for capacity building. Finally, the relationship between the extension services and NGOs in agriculture needs to be examined. Extension workers feel they are not getting cooperation from their NGO counterpart. This may be due to the fact that Indonesia's NGOs and government ministries compete for the ways to approach and getting control over farmers (Martheen, Cahyono, & Wahyuni, 2003). However, in the interest of the farmers, both must learn to work together.

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