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Training Needs of Indonesian Agricultural Extension Workers for the 21st Century: A Recommendation Based on a Field Study

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ABSTRACT

Agricultural extension in Indonesia has undergone major policy changes, depending on the government in power. In particular, since 1998, the government passed Law No 16/2006, aimed at making the extension system more democratic and participatory, especially for smallholder farmers. Law No. 16/2006 is in line with the "pluralistic and demand-driven extension approach" adopted by many developing countries since 2000, which allowed public and private extension systems to exist side-by-side. Success of the new extension approach rests on the degree to which extension workers are able to mobilize smallholder farmers for "demand-driven" development that bases extension on smallholder farmers' needs. This survey of 78 public extension workers in Yogyakarta Province, Indonesia examined challenges in implementing the pluralistic and demand-driven extension approach, including training needed to help extension workers deal more effectively with these challenges. The study found that the challenges relate to agreeing on extension goals; eliciting collaboration with non-government agencies and other development partners; and using ICTs to narrow the farmers-to-agent ratio. In general, the study found that extension workers need training in communication and development, also known as communication for development (C4D) to effectively facilitate development and navigate the increasing complexity of development programming in the 21st century. Thus, we recommend C4D training for extension workers as a way of enhancing their effectiveness. Fortunately, the World Bank and the Food and Agriculture Organization of the United Nations are promoting this strategy. Therefore, we urge the government of Indonesia to explore C4D as a strategy for strengthening extension in the country.

Keywords: training needs, extension worker, communication for development
JEL Classification: I3, O13

INTRODUCTION

Agricultural extension in Indonesia has undergone numerous changes depending on the government in power. President Suharto (the second president) ruled from the 1960s to the late 1990s and while he may be credited for doing much to end poverty in Indonesia, he also ruled with a heavy hand. His government viewed agricultural extension as a tool to get farmers to do its bidding. Extension took a "top-down" or dictatorial approach whereby farmers were coerced to produce rice as the main staple food to ensure food security (Lubis 2012). On the other hand, President Susilo Bambang Yudhoyono's government (the sixth president), who ruled from 2004 to 2014, equally committed to food security and poverty reduction but took a more democratic, bottom-up or people-centered approach to extension by allowing farmers to decide what to produce and the government, through extension, providing the resources they need. The new extension approach was introduced by Law No. 16 in 2006, governing the agricultural, fisheries, forestry, and extension sectors.

Although the policy is viewed as a law in Indonesia, in other developing countries it is simply referred to as the "pluralistic and demand-driven" approach, which has been in place since 2000 (Davis 2008; Davidson and Ahmad 2003). Under this system, the government no longer has exclusive control over the provision of extension services and inputs. Instead, non-government organizations (NGOs) and farmer organizations could compete or collaborate with the public sector in doing so. For Indonesia, Law No. 16/2006 introduced three types of extension services: (1) public sector or government employee extension workers (*penyuluh pegawai negeri sipil*), (2) private or NGO extension workers (*penyuluh swasta*), and (3) farmers supporting extension workers (*penyuluh swadaya*). There were three other aspects associated with the law. One was that extension took a democratic, bottom-up, or demand-driven approach whereby extension workers and the government first listened to the needs and concerns of farmers and then responded by providing the appropriate resources and information. The other pillar of the new extension approach was decentralized, local decision making whereby development decision-making power was relinquished by authorities at the national center and given to those at the grassroots. The last aspect of the law was that, in lieu of or in addition to their role as agricultural educators, extension workers were to assume the role of facilitators of integrated rural development programs (IRDPs) by coordinating the activities of other ministries, NGOs, and private organizations to ensure holistic development (Lubis 2001; Wisika and Susilowati 2012).

In essence, the new law placed untold demands on extension workers in Indonesia as they headed into the 21st century. The question is whether Indonesia's extension workers were provided with the training necessary to cope with these new tasks? This is noteworthy because Rondinelli (1993) had argued that new agricultural and rural development schemes, such as the IRDPs introduced in the mid-1970s by the World Bank as a strategy for holistic development, were complex and that extension workers lacked the training or sophistication to cope with their implementation. Therefore, this study of field extension workers in the Java region of Indonesia was aimed at assessing challenges faced by extension workers in implementing the new extension approach, focusing particularly on their training needs.

Indonesia, one of the fastest-growing developing countries in the world, recognizes the importance of agriculture. It is the largest economy in Southeast Asia, with a gross domestic product (GDP) annual growth rate of 5.4 percent, since the late 1990s, which reached

an all-time high of 7.2 percent in 2004 (Taborda 2013). The country's most important growth sector in terms of contribution to total GDP are manufacturing (46.5%); services, such as trade, hotels, and restaurants (38%); transport and communication (7%); finance, real estate, and business services (7%); government services (6%); and agriculture (15%).

Indonesia's population is roughly 235 million and smallholder farm households account for nearly 47 percent (BPS 2010). Given the importance of food security and the large smallholder farming population, agricultural extension strategy in Indonesia has been closely tied to national policies of successive governments. Adopting a bottom-up approach to extension, stressing democratic decision making by farmers, democratization, and decentralization are the flagship policies of the current and past government, as they stress growth of the economy, jobs for the people, and pro-poor policies that will lift the majority of Indonesians out of poverty. The agricultural revitalization policy as provided under Law No. 16/2006 (System of Agricultural, Fishery, and Forestry Extension) sought to achieve these goals. As noted earlier, the main cornerstones of the law are: (1) privatization of extension; (2) community or demand-driven decision-making; (3) decentralization; and (4) an integrated or holistic rural development approach. A significant component of the law was that all local government areas, especially at the provincial and district levels, were compelled to have agricultural extension institutions, whether profitable or not. In short, it guaranteed local farmers' access to farm inputs and services, no matter their location.

In 2010 there were more than 40 million farmers in Indonesia, nearly 45 percent of whom had farm sizes less than 0.5 hectare (ha) and 23 percent had 0.5–1 ha. Moreover, 75 percent of the farmers had elementary school education, 15 percent finished secondary school, and only 1 percent graduated from the university. Almost half (45%) are 25–44 years old, and 41 percent are above 45 years old (Lubis 2001). In stressing pro-poor and smallholder farmer development, Indonesia followed a path many developing countries adopted in 2000—the pluralistic and demand-driven approach (Davis 2008; Davidson and Ahmad 2003). The "training and visit system" of extension, which the World Bank promoted in developing countries for over 30 years at a cost of almost USD 5 billion, was abandoned in 1999 for lack of success (Purcell and Anderson 1997; Benor, Harrison, and Baxter 1984). This left developing countries without any viable extension approach so the pluralistic and demand-driven approach filled the void. Of interest to the researchers is: What training is needed to enable extension workers to implement pluralistic and demand-driven extension? In particular, Awa (1990) and Ascroft and Masilela (1994) have argued that in their role as agricultural educators, extension workers are generally trained in agriculture subject matter, which does not prepare them well for their new role as development facilitators. Therefore, this study was aimed at identifying knowledge and skills needed by extension workers in Indonesia for implementing the new extension law or in their role as development facilitators. Do extension workers in Indonesia have the knowledge and skills to effectively implement Law No. 16/2006? The specific objectives of the study are as follows:

1. To describe the demographic characteristics of Indonesia's extension workers;
2. To evaluate their competencies in using ICTs (information and communication technologies);
3. To find out whether extension workers are familiar with extension goals and whether these are being met;

4. To examine the challenges encountered by extension workers in implementing Law No. 16/2006 or the pluralistic and demand-driven extension system; and
5. To determine extension workers' training needs in implementing the new extension system.

METHODOLOGY

The research method used in this study was an exploratory survey of public extension workers at the sub-district and village levels in four regencies of Indonesia—Sleman, Bantul, Gunungkidul, and Kulonprogo—in Yogyakarta Province. The study was conducted in January–March 2013. Yogyakarta is situated in the southern coast of the central part of Java Island, a rich agricultural area for food crops and livestock production (BPS 2010). The location has a high risk of earthquakes and volcanic eruptions. The province covers 78 districts with 438 village/sub-district extension workers. However, due to resource limitations, only 78 extension workers were interviewed for the study. A multistage sampling technique was employed to ensure representation of all regencies/municipalities. The distribution of respondents was 18 respondents in Sleman, 17 respondents in Bantul, 12 respondents in Gunungkidul, and 14 respondents in Kulonprogo. We acknowledge that the sample size is not representative of the entire province or of the entire country. Therefore, our goal is not to generalize but simply to explain the challenges of extension in this specific area.

A structured questionnaire was used to collect the data. Demographic questions enabled us to understand the socioeconomic and educational background of the respondents. A six-point Likert scale was used to measure the level of satisfaction of extension workers. Extension workers were also asked if they possessed or owned ICT tools (e.g., mobile phones), their levels of competency in using these tools, and whether they used them for extension activities. The questionnaire was developed in English and translated into Bahasa Indonesia. To ensure reliability, the Indonesian translation was given to another person who translated it back to English. Lastly, the questionnaire was pretested before data collection to ensure the validity, reliability, and practicability of the study (Kothari 2004). The collected data were descriptively analyzed using SPSS.

RESULTS AND DISCUSSION

The findings are presented in five parts corresponding to the research objectives: (1) demographic characteristics, (2) extension agents' competencies in using ICTs, (3) extension goals and whether they are being met, (4) challenges facing implementation of the new extension system, and (5) extension workers' training needs in communication and development.

Demographic Characteristics of Extension Workers

Demographic characteristics reveal the personal qualities of extension workers, which may indicate their training needs. Extension workers' demographic characteristics of importance to the study were: sex, years of work experience, level of education, and job satisfaction. Seventy-eight extension workers at the sub-district and village levels in the Sleman, Bantul, Gunungkidul, and Kulonprogo, regencies were interviewed. Fifty-three (60.2%) were men and 20 (22.7%) were women. Thirty-seven (42%) of the respondents had "extension worker" as their title; another 20 (22.7%) had "extension worker in contract" as their job title, while 30 (34.1%) did not mention their job titles. About 40 percent of the respondents

had 6 years or less of work experience; 24 percent had experience anywhere from 6.5 to 36 years; while 34 did not reveal their years of experience. With respect to age, there was widespread variability. About 31 percent were aged 27 to 35 years; 31.8% were aged 36 to 50 years; 21.4% were aged 51 to 56 years while 20 (22.7%) did not reveal their ages. About 55 (62.7%) of respondents were born and raised in rural settings and 50 (56.8%) parents were farmers. With respect to level of education, there was also widespread variability. About 41 percent had bachelor degrees; the rest had diploma certificates (9%), vocational education (11.3%); senior high school education (11.3%); junior high school education (3.4%). A fourth (25%) did not indicate their level of education. For the 75 percent who revealed their level of education, all of them were trained in the agricultural sciences, such as animal science, food science, and agricultural technology.

Extension workers were asked to indicate their level of satisfaction as shown in Table 1. In general, most (80.6%) respondents expressed strong satisfaction ("moderately satisfied" to "very highly satisfied") with their role as extension agents. Most (73.9%) were also satisfied ("moderately satisfied" to "very highly satisfied") by their achievement as an extension officer and their knowledge of agriculture they use to teach farmers (69.3%) respondents. Surprisingly, extension workers were highly satisfied in their role as "development facilitators" rated by 62 (70.4%) respondents from "moderately satisfied" to "very highly satisfied." The items which extension workers were least satisfied with were: cooperation from NGOs (40.9%) and salary and incentives, for which 62 respondents (70.5%) were moderately satisfied, moderately dissatisfied, or highly dissatisfied. Respondents were also equally dissatisfied with coordination with other departments in the Ministry of Agriculture and cooperation from other ministries of government.

Extension Agents' Competencies in the Use of ICTs

ICTs, such as frequency modulation (FM) equipment for establishing community radio broadcasting stations, mobile phones and the internet can be effective tools for expanding extension's reach to smallholder farmers, especially those located deep in the rural hinterland. What is more, the prices of these equipment are falling daily, thus, making them more and more affordable. The study asked three main questions related to ICTs (Table 2). First, do extension workers own or have access to ICTs? Second, do they know how to use this equipment? And, third, do they use them in extension work? About 67 (76.1%) of the 88 respondents surveyed owned or had access to mobile phones, 62 (70.5%) know how to use mobile phones, and 55 (62.5%) use it for extension. About 46 (52.3%) respondents had access to desktop/office computers, 55 (62.5%) know how to use desktop computers, and 44 (50.0%) use these for extension. At the extreme end, only four respondents indicated having access to email for e-commerce; six respondents knew how to use email for e-commerce; and only three have used email for e-commerce activity in extension. Likewise, the number of extension workers with access to Skype accounts is extremely small (?) and hardly anyone uses Skype (?) for extension. A general observation is that close to half of all respondents have access to ICTs. They also know how to use the equipment or can learn quickly how to use them. However, extension workers do not use these equipment in extension work.

Table 1. Extension workers' levels of job satisfaction

Item	Very Highly Dissatisfied	Highly Dissatisfied	Moderately Dissatisfied	Moderately Satisfied	Highly Satisfied	Very Highly Satisfied	Not Applicable
Work as an extension agent	-	-	1 (1.1%)	25 (28.4%)	42 (47.7)	4 (4.5%)	16 (18.2%
Salary and other incentives	1 (1.1%)	9 (10.2%)	22 (25.0%)	30 (34.1%)	11 (12.5%)	-	15 (17.0%)
Level of education	1 (1.1%)	7 (8.0%)	14 (15.9%)	25 (28.4%)	23 (26.1%)	2 (2.3%)	16 (18.2%)
Opportunities for higher education	1 (1.1%)	5 (5.7%)	11 (12.5%)	31 (35.2%)	22 (25.0%)	1 (1.1%)	17 (19.3%)
Opportunities for short-term training	1 (1.1%)	1 (1.1%)	19 (21.6%)	34 (38.6%)	18 (20.5%)	-	15 (17.0%)
Training in communication	-	6 (6.8%)	18 (20.5%)	34 (38.6%)	13 (14.8%)	1 (1.1%)	16 (18.2%)
Achievement as an extension officer	-	4 (4.5%)	11 (12.5%)	39 (44.3%)	17 (19.3%)	2 (2.3)	15 (17.0%)
Cooperation from nongovernmental agencies	4 (4.5%)	7 (8.0%)	25 (28.4%)	24 (27.3%)	9 (10.2%)	1 (1.1%)	18 (20.5%)
Cooperation from other departments in agriculture	2 (2.3%)	6 (6.8%)	18 (20.5%)	29 (33.0%)	16 (18.2%)	1 (1.1%)	16 (18.2%)
Cooperation from other government ministries	1 (1.1%)	6 (6.8%)	14 (15.9%)	34 (38.6%)	15 (17.0%)	1 (1.1%)	17 (19.3%)
Resources I have to work with	-	-	15 (17.0%)	40 (45.5%)	15 (17.0%)	2 (2.3%)	16 (18.2%)
Knowledge of development facilitation	1 (1.1%)	-	9 (10.2%)	49 (55.7%)	12 (13.6%)	1 (1.1%)	16 (18.2%)
Knowledge of agriculture to teach farmers	-	-	10 (11.4%)	31 (35.2%)	30 (34.1%)	-	17 (19.3%)
Achievements of extension	-	-	7 (8.0%)	43 (48.9%)	22 (25.0)	-	16 (18.2%)
Process of decentralization	-	5 (5.7%)	14 (15.9%)	37 (42.0%)	15 (17.0%)	-	17 (19.3%)

Table 2. Extension workers' use of ICTs

ICT	Own/Have Access	Know How to Use	Use in Extension
Cell phone	67 (76.1%)	62 (70.5%)	55 (62.5%)
Desktop/Office computer	46 (52.3%)	55 (62.5%)	44 (50.0%)
MP3 player	40 (45.5%)	54 (61.4%)	24 (27.3%)
Email	37 (42.0%)	37 (42.0%)	22 (25.0%)
Laptop computer	36 (40.9%)	50 (56.8%)	35 (39.8%)
Ministry of Agriculture's website	34 (38.6%)	37 (42.0%)	31 (35.2%)
Facebook	31 (35.2%0	37 (42.0%)	13 (14.8%)
Internet in office	30 (34.1%)	38 (43.2%)	23 (26.1%)
PowerPoint software	28 (31.8%)	31 (35.2%)	17 (19.3%)
Word processor	21 (23.9%)	23 (26.1%)	15 (17.0%)
Video/digital camera	18 (20.5%)	26 (29.5%)	22 (25.0%)
Community radio	9 (10.2%)	17 (19.3%)	5 (5.7%)
Skype	4 (4.5%)	7 (8.0%)	1 (1.1%)
E-Commerce	4 (4.5%)	6 (6.8%)	3 (3.4%)

Extension Goals, Are They Being Achieved?

A general criticism of extension systems worldwide is whether they are making the desired impact. This draws attention to two issues: (1) what are the extension goals in a given country; and (2) are these goals being met. This section of the survey, therefore, asked whether extension workers knew the goals of Indonesia's new extension policy, Law No. 16/2006 (also known as the "pluralistic and demand-driven extension approach) and whether these were being met. Extension workers were asked to identify extension goals and to indicate whether they are being achieved. Table 3 reveals the results.

The left column is a list of the extension goals prioritized based on the number of respondents that articulated it. About 61 respondents (69.3%) identified helping smallholder farmers as a priority extension goal. This was followed by promoting smallholder farmers' participation in development/extension decision-making, mentioned by 59 respondents (67.0%). Other important extension goals were: (1) narrowing the farmers-to-agent ratio, (2) helping farmers gain access to farm inputs, and (3) increasing agricultural production, among others. In the right column, respondents indicated how well these goals were being achieved. There was not one goal that all extension workers felt was being achieved. The goal perceived as closest to being achieved by 69 respondents (78.4%) was *increasing agricultural production*; followed by *helping farmers gain access to inputs*; *narrowing the farmers-to-extension agent ratio*, and *helping farmers adopt agricultural innovations*. It is interesting to note that extension workers did not identify increasing agricultural production as the top extension goal. Instead, they noted that promoting adoption of innovations, increasing local participation, narrowing the farmer-to-agent ratio, and making inputs available will lead to increasing agricultural production.

Table 3. Extension goals and how well are they being met

Goal	Item	Achieved
61 (69.3%)	Helping smallholder farmers adopt agricultural innovations	63 (71.3%)
59 (67.0%)	Promoting smallholder farmers' participation in development decision-making	61 (69.3%)
58 (65.9%)	Narrowing the farmers to agent ratio	63 (71.6%)
58 (65.9%)	Helping farmers gain access to credit/farm inputs/markets	64 (72.8%)
58 (65.9%)	Increasing agricultural production	69 (78.4%)
57 (64.8%)	Improving rural livelihoods	60 (68.2%)
53 (60.2%)	Make extension financially self-sustainable/cost recovering	55 (62.5%)
53 (60.2%)	Mobilize the youth for agricultural and rural development	50 (56.8%)
53 (60.2%)	Promoting gender equity or women's participation in development	59 (67.1%)
52 (59.1%)	Facilitating integrated rural development/ poverty reduction strategy programs	54 (61.4%)
49 (55.7%)	Promoting climate change education	55 (62.5%)
47 (53.4%)	Advising government on extension policy	40 (45.5%)
47 (53.4%)	Facilitating linkage between research centers and farmers	48 (54.5%)
38 (43.2%)	Facilitating coordination across other sectors of government	34 (38.6%)
38 (43.7%)	Collaborating with NGOs	29 (33.0%)
35 (39.8%)	Reducing the HIVandAIDS pandemic	42 (47.8%)
32 (36.4%)	Facilitating holistic development	43 (38.9%)
31 (35.2%)	Facilitating coordination across departments in the Ministry of Agriculture	28 (31.8%)

Challenges in Implementing the New Extension System

Extension workers were asked about their agreement to several statements (e.g., did they feel that extension models or strategies in the country were changed too frequently, whether training is needed to implement the new strategy). Table 4 presents the views of extension workers related to the challenges of implementing the new extension model. To the statement "extension methods are changed too frequently," the responses were evenly split. Thirty-six respondents (40.9%) "very strongly disagreed", "strongly disagreed," or "somewhat disagreed." It means that they felt extension models were not being changed frequently. On the other hand, an equal number (36 respondents) "very strongly agreed," "strongly agreed," or somewhat agreed" with the statement that extension models were being changed too frequently. A large majority of respondents generally disagreed that "the privatization of extension is mainly the result of a lack of confidence in public extension," which is the general reason given for privatization (Davidson and Ahmad 2003; Davis 2008). However, in the case of Indonesia, the government framed it as a law. A majority of respondents also agreed that smallholder farmers could not pay for extension, which is in line with studies carried out in many African countries (Agunga, Ndiaye, and Igodan 2014). A significant finding also was that for effective coordination of activities across sectors, the extension system must be located in a neutral location outside the Ministry of Agriculture. This is in conformity with Chandler's (1960) theory that in organizational structuring, form must follow function.

Table 4. Challenges regarding implementation of the new extension policy

Item	Very Strongly Disagree	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	Very Strongly Agree	Not Applicable
Extension methods are changed too frequently.	4 (4.5%)	11 (12.5%)	21 (23.9%)	27 (30.7%)	7 (8.0%)	2 (2.3%)	16 (18.2%)
The Training and Visit System was successful.	-	4 (4.5%)	20 (22.7%)	20 (22.7%)	27 (30.7%)	1 (1.1%)	16 (18.2%)
The privatization of extension is mainly the result of a lack of confidence in public extension.	3 (3.4%)	19 (21.6%)	29 (33.0%)	18 (20.5%)	2 (2.3%)	1 (1.1%)	16 (18.2%)
The demand-driven extension system was successful.	-	3 (3.4%)	22 (25.0%)	38 (43.2%)	4 (4.5%)	1(1.1%)	20 (22.7%)
The pluralistic extension system was successful.	1 (1.1%)	4 (4.5%)	11 (12.5%)	39 (44.3%)	15 (17.0%)	1 (1.1%)	17 (19.3%)
NGO extension is more effective than public sector extension.	6 (6.8%)	21 (23.9%)	30 (34.1%)	12 (13.6%)	12 (13.6%)	-	16 (18.2%)
Small farmers can afford to pay for privatized extension services.	5 (5.7%)	19 (21.6%)	22 (25.0%)	20 (22.7%)	5 (5.7%)	1 (1.1%)	16 (18.2%)
When extension is under agricultural ministry workers in							
other ministries feel it does not belong to them.	1 (1.1%)	9 (10.2%)	24 (27.3%)	21 (23.9%)	16 (18.2%)	-	17 (19.3%)
To effectively coordinate activities across sectors extension must be located in a neutral organization outside the Ministry of Agriculture.	1 (1.1%)	5 (5.7%)	20 (22.7%)	27 (30.7%)	17 (19.3%)	-	18 (20.5%)
Many extension workers feel inadequately trained to coordinate the activities of their counterparts in other sectors, such as agricultural economists and environmentalists.	1 (1.1%)	4 (4.5%)	17 (19.3%)	28 (31.8%)	19 (21.6%)	2 (2.3%)	17 (19.3%)
Extension workers should be able to use research skills to assess development impacts.	1 (1.1%)	10 (11.4%)	31 (35.2%)	27 (30.7%)	3 (3.4%)	3 (3.4%)	-
It is possible to measure the impact of extension in national development.	-	-	9 (10.2%)	29 (33.0%)	32 (36.4%)	2 (2.3%)	16 (18.2%)

Need for Communication for Development (C4D) Training

The last objective of the study examined extension workers' training needs to effectively facilitate development. In particular, the authors focused on "communication" and "development" training needs under the rubric of C4D. Extension workers were tasked to facilitate integrated rural development, which presupposed they know the meaning of development. Communication skills are also needed to facilitate interaction across sectors and NGOs. In the World Bank (2007, xxvii) report *World Congress on Communication for Development: Lessons, Challenges, and the Way Forward,* The Bank noted that, "communication is integral to development and to achieving the Millennium Development Goals. For this reason, it must be built into development planning and embedded into strategies for poverty reduction, health planning, and governance." Thus, the researchers examined whether extension agents agreed with this conclusion. As shown in Table 5, respondents overwhelmingly agreed that communication was necessary for coordination, integration, participation, and capacity building. Seventy-two respondents or (81.7%) "very strongly agreed," "strongly agreed," or somewhat agreed" that communication was necessary for achieving coordination, integration, participation, and capacity building. A vast majority of respondents equally agreed that communication was necessary for decentralization; for bringing development partners together; and that virtually all development ministries had a need for communication. Over 80 percent of the respondents said that "understanding development theory was essential for extension workers." A similar percentage also said that understanding development policy and practice were essential for extension workers. The vast majority of respondents also said that the development process was "complex" and that extension workers lack the training to cope with this complexity. This finding is also in agreement with Rondinelli (1993). In general, respondents agreed with the World Bank (2007) report that they need training in C4D.

CONCLUSION AND RECOMMENDATIONS

Indonesian Law No. 16/2006, which sought to transform agricultural extension practice in the country from a top-down to a bottom-up process, came into being in 2006. Nine years later, this study was carried out to assess the effectiveness of the policy by asking extension workers whether they knew what extension goals were and whether these were being met. We also wanted to know what the challenges were in implementing the pluralistic and demand-driven extension approach and what training extension workers needed to assist them in implementing the new approach and thus, ensuring extension effectiveness.

Our sample was not representative of extension workers across the country and, therefore, it was not our goal to generalize the study but simply to present a case study. However, Cahyono (2014) had similar findings, suggesting that our findings may have implications for the country as a whole. Measuring extension goals is critical because effective strategies must lead to goal attainment. The findings of the study are mixed. On the one hand, extension workers expressed satisfaction with the achievements of extension; while others said that extension goals were not being accomplished. This contradiction reveals a problem with survey research, which is that respondents tend to give answers they feel the researchers want to hear. Our recommendation is that survey methods must be supported with

Table 5. Communication and development training

Item	Very Strongly Disagree	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree	Very Strongly Agree	Not Applicable
Communication is necessary for coordination.	-	-	4 (4.5%)	23 (26.1%)	36 (40.9%)	9 (10.2%)	16 (18.2%)
Communication is necessary for integration.	-	-	3 (3.4%)	21 (23.9%)	37 (42.0%)	11 (12.5%)	16 (18.2%)
Communication is necessary for participation.	-	-	2 (2.3%)	21 (23.9%)	38 (43.2%)	11 (12.5%)	16 (18.2%)
Communication is necessary for building linkages.	-	-	2 (2.3%)	21 (23.9%)	36 (40.9%)	13 (14.8%)	16 (18.2%)
Communication is essential for decentralization.	-	-	5 (5.7%)	26 (29.5%)	34 (38.6%)	7 (8.0%)	16 (18.2%)
Community radio spreads information to rural areas not covered by extension.	-	3 (3.4%)	5 (5.7%)	34 (38.6%)	23 (26.1%)	7 (8.0%)	16 (18.2%)
Communication brings development partners together.	-	-	4 (4.5%0	31 (35.2%)	28 (31.8%)	9 (10.2%)	16 (18.2%)
Communication is at the heart of development.	-	-	3 (3.4%)	26 (29.5%)	37 (42.0%)	6 (6.8%)	16 (18.2%)
Development facilitators need communication training.	-	-	2 (2.3%)	28 (31.8%)	28 (31.8%)	14 (15.9%)	16 (18.2%)
Virtually all development ministries have need for communication.	-	-	3 (3.4%)	25 (28.4%)	34 (38.6%)	10 (11.4%)	16 (18.2%)
Understanding development theory is essential for extension workers.	-	-	6 (6.8%)	22 (25.0%)	36 (40.9%)	8 (9.1%)	16 (18.2%)
Understanding development policy is essential for extension workers.	-	-	6 (6.8%)	24 (27.3%)	33 (37.5%)	9 (10.2%)	16 (18.2%)
Understanding development practice is essential for extension workers.	-	-	3 (3.4%)	26 (29.5%)	33 (37.5%)	10 (11.4%)	16 (18.2%)
The development process is complex.	-	-	3 (3.4%)	23 (26.1%)	36 (40.9%)	10 (11.4%)	16 (18.2%)
Extension workers lack the training to cope with the complexity of the development process.	-	-	13 (14.8%)	28 (31.8%)	27 (30.7%)	3 (3.4%)	17 (19.3%)
Extension workers need training in development.	-	-	3 (3.4%)	18 (20.5%)	39 (44.3%)	12 (13.6%)	16 (18.2%)

qualitative research, such as field observations, review of annual reports, or asking farmers how satisfied they are with the extension delivery system.

Two other findings are of significance. First, that the extension process, especially, as represented by facilitation of integrated rural development programs, was quite complex and extension workers lacked the training to cope with this sophistication. This finding supports Rondinelli (1993) who concluded that many of the programs failed because of a human resource inability to manage the complexity of these programs. Second is the expression of the extension workers, which indicate the training needs on communication skills and development, which are crucial in their role as facilitators of integrated rural development. Our study also found that extension workers need coordination and linkage skills to relate more effectively with NGOs, other departments of the Ministry of Agriculture, and other sectors of government. Moreover, extension workers need communication skills to mobilize smallholder farmers for participatory development; and need to apply effective use of ICTs in extension work. This is in line with the World Bank and FAO (2007) conclusion that C4D has widespread application in development programming.

In general, we admit that our study did not specifically measure the level of effectiveness of the pluralistic and demand-driven extension approach. However, we asked questions related to extension goals and to the challenges of implementation of the new extension approach, which served as pointers to measuring its effectiveness. Likewise, while our study did not focus exclusively on training needs of all Indonesian extension workers, our study revealed that complexity is the main feature of extension work in the 21st century and the success of extension will depend on the degree to which extension workers are able to deal with this increasing sophistication of agricultural and rural development programming.

In conclusion, we feel that the C4D approach as noted by the World Bank and the FAO and carefully outlined by Agunga (2012) has relevance and should be examined more closely for extension in Indonesia. We also found that Indonesia's extension workers are skilled in the use of ICTs and the equipment should be incorporated into extension practice to expand extension's reach to the remote areas and to narrow down the farmer-to-agent ratio.

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REFERENCES

Agunga, R. 2012. "Communication for Development: A Personal Experience with Implications for Development Policy." *The Journal of Agricultural Education and Extension* 18 (5): 509–524.

Agunga, R., A. Ndiaye, and C.O. Igodan. 2014. A Study on the Training Needs of Agricultural Extension Workers in Senegal. *Journal of Extension Systems* 30 (1).

Ascroft, J., and S. Masilela. 1994. "Participatory Decision Making in Third World Development." In *Participatory Communication: Working for Change and Development* edited by S.A. White, K.S. Nair, and J. Ascroft. New Delhi: Sage Publications.

Awa, N.E. 1990. "Extension Education and Communication in Agricultural and Rural Development." In *Development Communication for Agriculture* edited by R.K. Samanta, 159 –171. New Delhi, India: B.R. Publishing Corporation.

BPS (Badan Pusat Statistik). 2010. Statistics Indonesia 2010. Accessed February 19, 2013. http://www.bps.go.id/index.php#

Cahyono, E. D. 2014. "Challenges Facing Extension Agents in Implementing the Participatory Extension Approach in Indonesia: A Case Study of Malang Regency in the East Java Region." PhD diss. proposal, Graduate Program in Agricultural Communication, Education, and Leadership, The Ohio State University.

Chandler, A. D. 1962. *Strategy and Structure: Chapters in the History of the American Industrial Enterprise*. Boston: MIT Press.

Davidson, A.P., and M. Ahmad. 2003. *Privatization and the Crisis of Agricultural Extension: The Case of Pakistan*. London: Ashgate Publishing.

Davis, K.E. 2008. "Extension in Sub-Saharan Africa: Overview and Assessment of Past and Current Models and Future Prospects." *Journal of Agricultural and Extension Education* 15(3): 15–28.

Inagaki, N. 2007. *Communicating the Impact of Communication for Development: Recent Trends in Empirical Research*. Washington, D.C.: The World Bank.

Kothari, C.R. 2004. *Research Methodology: Method and Techniques, 2nd Ed.* New York: New Age International Ltd.

Lubis, D.P. 2012. "Agricultural Extension in Indonesia: Current Status and Possible Ways to Meeting Emerging Challenges." PhD diss., Department of Communication and Community Development, Faculty of Human Ecology, Bogor Agricultural University. http://www.syngentafoundation.org/__temp/Lubis_Indonesia_Agricultural_Extension.pdf

Malawi Ministry of Agriculture and Irrigation. 2000. *Agricultural Extension in the New Millennium: Towards Pluralistic and Demand-driven Services in Malawi*. Lilongwe: Ministry of Agriculture.

Oyaro, K. 2008. "Africa: Agricultural Extension Work Both Important and Under-valued." *IPS Inter Press Service, April 27.* http://www.ipsnews.net/2008/04/africa-agricultural-extension-work-both-important-and-under-valued/

Purcell, D.L., and J.R. Anderson. 1997. *Agricultural Extension and Research: Achievements and Problems in National Systems*. Washington, D. C.: World Bank

Rondinelli, D.A., 1993. *Development Projects as Policy Experiments: An Adaptive Approach to Development Administration, 2nd ed*. New York: Routledge.

Taborda, J. 2013. "Indonesia's Strong Growth May Be at Risk." Accessed December 29, 2013. http://www.tradingeconomics.com/articles/03192013224222.htm

Wisika, S.D., and Susilowati. 2012. "Improving Crop Farming Performance with Revitalising Institutional and Extension Program in Central Java Province-Indonesia: An Alternative Exit Strategy from Agriculture Turbulence." *Proceedings: 2nd International Conference on Environment and BioScience IPCBEE* 44. Singapore: IACSIT Press.

World Bank. 2007. *World Congress on Communication for Development: Lessons, Challenges, and the Way Forward. The World Bank*. Washington, D.C.: World Bank, FAO, The Communication Initiative.