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## INTRODUCTION OF SMALLHOLDER HORTICULTURE EMPOWERMENT AND PROMOTION (SHEP) APPROACH AS AN INNOVATIVE AGRICULTURAL EXTENSION MODEL

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## ABSTRACT

Agricultural extension in developing countries faces many challenges. The main challenge for public institutions, the implementers of agricultural extension services, is that they have weak implementation systems to support farmers. On the other hand, the main challenge faced by beneficiary farmers is low agricultural productivity and income. Against this backdrop, the Japan International Cooperation Agency (JICA) launched an initiative to promote “*agriculture as a business*” by strengthening the agricultural extension systems of developing country governments, beginning with a technical cooperation project implemented in Kenya from 2006 to 2009. The agricultural extension method developed in this project is the Smallholder Horticulture Empowerment and Promotion (SHEP) approach. The SHEP approach is supported by two theoretical pillars: promoting farming as a business (economics) and empowering and motivating people (psychology). A series of activities fulfilling these two pillars is the innovative originality of the SHEP approach. These activities are practiced according to four steps to promote market-oriented agriculture while motivating smallholders to improve their farming operations. In Kenya, horticultural income of target farmers increased through the practice of “*grow to sell.*” Following this result, the SHEP approach has spread across Africa through the Tokyo International Conference on African Development (TICAD), benefitting 256,546 small-scale farmers in 30 countries to date. In countries where the SHEP approach was implemented, in addition to the outcomes of increased horticultural productivity and income, many impacts were identified that contributed to improved farmers’ livelihoods, including repairing or building houses, purchasing mobile phones and vehicles, installing electricity in homes and funding children’s education. Since TICAD VII in 2019, JICA has been working with African governments, development partners, private companies and relevant organizations to promote the transition to profitable agriculture through the SHEP approach with the goal of achieving better lives for one million smallholders by 2030. This has led to the utilization of the SHEP approach in various forms, and its effectiveness and versatility has been recognized. However, inadequate government agricultural extension budgets and farmers’ high expectations for the provision of agricultural inputs raise the bar for intervention in the SHEP approach. The SHEP approach, however, is not a “*panacea*” that can solve all agricultural extension challenges in developing countries. Nevertheless, in order to continue agricultural and rural development programs/projects that promote farmers’ self-reliance, it is essential to continue to extract the outcomes and impacts of the SHEP approach at the field level and disseminate the effectiveness of the approach widely.

**Key words:** agricultural extension, market-oriented, SHEP approach, smallholder, JICA, technical cooperation, Kenya, income



## INTRODUCTION

The challenges of agricultural extension in developing countries can be broadly categorized into those faced by the implementers and beneficiaries of agricultural extension services. First, the implementers of agricultural extension services are public institutions, such as the Ministry of Agriculture and local governments, and the main challenge is the weak implementation system to support farmers. In developing countries, a situation is created where agricultural extension as a necessary public service does not reach farmers due to the lack or absence of resources to support farmers, poor knowledge and skills of extension workers and teaching materials for farmer training and instruction. Many programs/projects still involve technology transfer with material rewards, which contributes to farmers' dependency and undermining effects. Furthermore, the lack of collaboration with non-government actors, such as the private sector and NGOs, also misses opportunities for effective and efficient implementation of projects and for the spillover of results. Second, the main challenge facing the beneficiaries, who are farmers, is low agricultural productivity and income. The interplay of farmers' low cultivation techniques and management skills and lack of access to information and services held by various stakeholders has resulted in continued low productivity and income. In addition, farming is not practiced as a management partner in farm households due to lack of gender considerations and trust building between couples. Furthermore, farmers and farmer groups that are not equipped with the desire to produce and sell lack the mindset to make business decisions, creating a vicious cycle that does not promote active acceptance of new technologies, knowledge and skills [1]. Against this backdrop, the Japan International Cooperation Agency (JICA) is promoting "agriculture as a business" by strengthening the agricultural extension systems of developing country governments through the implementation of a technical cooperation project in Kenya.

The SHEP approach, which stands for Smallholder Horticulture Empowerment and Promotion Approach, is an agricultural extension approach developed through a technical cooperation project between Kenya's Ministry of Agriculture, Livestock, Fisheries and Irrigation and JICA, which began in 2006 [2]. The objective of the project is to improve horticultural income by changing the mindset of small-scale farmers producing horticultural crops from "grow and sell" to "grow to sell" and by improving their cultivation techniques and farming skills.



At the 5<sup>th</sup> Tokyo International Conference on African Development (TICAD V) in 2013, the Japanese government declared its commitment to train 1,000 agricultural extension officers and 50,000 small-scale farmers to promote the transformation to profitable agriculture through the SHEP approach in ten neighboring countries of Kenya by 2017. The goal was achieved three years later, thanks to the enthusiasm of the respective developing country governments. In the African region, 24,396 agricultural extension officers and 256,546 small-scale farmers have been trained in 30 countries [1].

The promotion of market-oriented agriculture is recognized as an important issue not only for governments of the developing countries but also for development partners, and various projects have been implemented since the early 2000s. In response to the Sustainable Development Goals (SDGs) adopted in 2015, private companies, NGOs, and universities are also increasingly interested in promoting commercial agriculture to improve food production, agricultural productivity, and farm income. In light of these trends in the international community, “*Joint Declaration for achieving better lives of one million small-scale farmers through SHEP Approach*” [3] was announced at TICAD VII in 2019, with the participation of representatives of African governments, development partners, private companies and relevant organizations. This Joint Declaration aims to maximize farmers’ ability to practice farming as a business by utilizing the SHEP approach, and to help at least one million small-scale farmers achieve a better life by 2030. Through this initiative, all parties committed to respect the autonomy of small-scale farmers and make an effort to support them to do “*farming as a business*” by making use of the SHEP approach so that they become the core farmers who take an initiative for market-oriented agriculture in their community and make the rural economy more activated toward achieving the goal 2 of the SDGs, Zero Hunger. Furthermore, JICA will also contribute to the achievement of Goals 1 (No Poverty), 5 (Gender Equality), and 8 (Decent Work and Economic Growth) of the SDGs through further dissemination, development and cross-cutting utilization of the SHEP approach.

Since TICAD VII, JICA has introduced the SHEP approach widely in international forums. In April 2021, the SHEP approach was published in the Food and Agriculture Organization of the United Nations (FAO)’s Technologies and Practices for Small Agricultural Producers (TECA) [4]. In addition, the SHEP approach was also featured as one of the best practices in the “*Agriculture Human Capital Investment -Case Study-*” by FAO and The International Food Policy Research



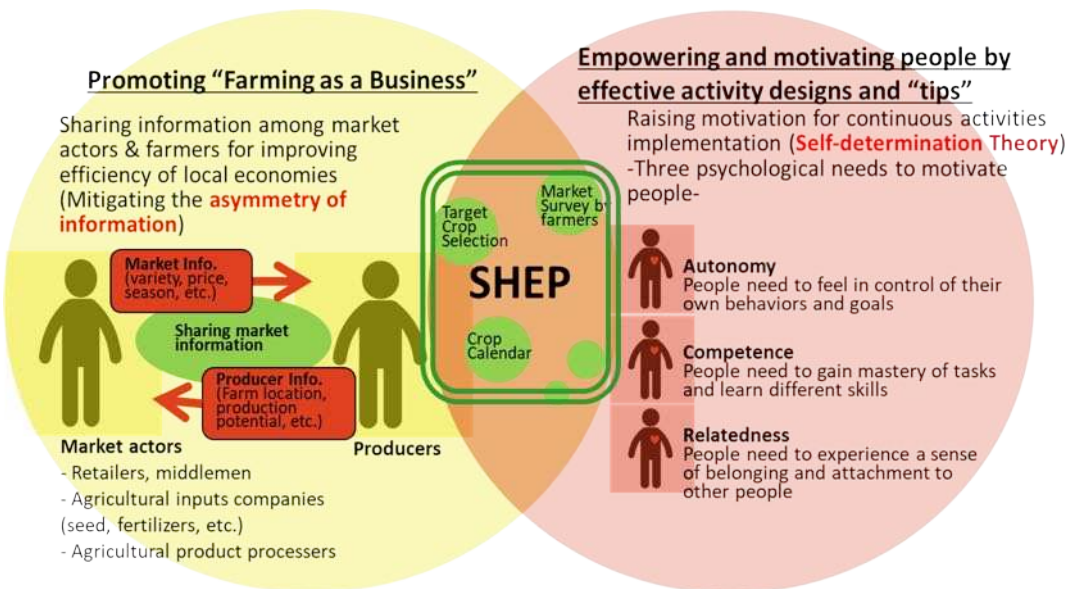
Institute (IFPRI) [5]. Furthermore, the SHEP approach has been adopted and is being used in programs/projects implemented by the International Fund for Agricultural Development (IFAD) in Lesotho, Burkina Faso, Malawi and other countries. As described above, since the declaration of “*SHEP for One Million Smallholders*” was made jointly with partner organizations, the use of the SHEP approach has progressed through ongoing collaborative discussions, and its effectiveness and versatility have been recognized by other organizations.

As of 2023, the SHEP approach has been introduced not only in Africa, but also in Asia, Latin America and the Middle East, benefiting 281,001 small-scale farmers in 57 countries to date. This paper specifically discusses the characteristics, outcomes/impacts, challenges and way forward of the SHEP approach.

**MATERIALS AND METHODS**

**Concept of the SHEP Approach**

The SHEP approach is underpinned by two theoretical pillars: (1) promoting farming as a business and (2) empowering and motivating people (Figure 1). First, (1) promoting farming as a business is an effort aimed at “*grow to sell*”, based on the economic theory of markets with asymmetric information. Second, the design and mechanism for (2) empowering and motivating people is an effort to motivate farmers, backed by the Self-Determination Theory (SDT) of psychology. Activities fulfilling these two pillars are the originality of the SHEP approach.



**Figure 1: Concept of the SHEP approach**



First, with regard to (1) promoting agriculture as a business, which is listed on the left side of Figure 1, specific initiatives and their effects and benefits are described below. In developing countries, there is a disparity in the quantity and quality of information held by farmers and the market actors and so forth is one of the strongest factors of inefficient local economy, which smallholders often suffer from [9]. The SHEP approach is working to bridge the information gap between farmers and market actors by providing training on marketing, such as stakeholder forums and market survey. SHEP's farmer-initiated market survey allows farmers and market actors to exchange and share the information they have with each other, thereby mitigating information asymmetry. As a result, effective and continuous commercial transactions are realized, creating a win-win relationship between farmers and market actors.

Second, with regard to (2), empowering and motivating people, which is listed on the right side of Figure 1, specific efforts and their effects are described below. This is based on SDT proposed by Edward L. Deci and Richard M. Ryan [6, 7], which introduced a mechanism to increase the intrinsic motivation of farmers and extension staff to continue their activities. The introduction of SDT into development programs/projects is unique and novel compared to simply providing the "*appropriate knowledge and skills*" that many practitioners have traditionally believed to be useful. Specifically, the SHEP approach actively promotes activities which provide support for the Basic Psychological Needs (BPNs): Autonomy, Competence and Relatedness assumed by SDT. As shown in Figure 1, the need for autonomy is the desire to act on your own volition - or rather, the desire to not be controlled by others [8]. For instance, farmers are guided to conduct market surveys on their own so that they can feel in control of their own action, which leads to supporting their need for autonomy. Then, competence in SDT is defined as "*ability to interact effectively with one's environment* [8]." By carrying out market surveys successfully, the farmers also feel that they have gained mastery (skills and knowledge) of this particular task and learned new skills, which is a competence support. Finally, the need for relatedness is the desire to have good relationships with others [8]. In the SHEP approach, farmer representatives who conducted market surveys returns to the group and shares the findings with fellow farmers. Through this process, farmers feel a sense of belonging and attachment to group members, which supports their need for relatedness. Therefore, the SHEP



approach fosters farmers to think and act spontaneously through the satisfaction of three BPNs using motivational devices [8].

### SHEP's Essential Four Steps

The SHEP approach has four essential steps that represent a concrete process of implementation and incorporate activities that promote farming as a business, while motivating farmers to improve their farming operations (Figure 2). In order to maximize the farmers' initiative, the SHEP approach adheres to the following processes: Step 1, farmers visualize their objectives and success stories, Step 2, farmers learn market values through market survey, Step 3, farmers select crops and prepare cultivation plans and Step 4, farmers learn cultivation techniques for the selected crops [9]. A series of activities is encouraged to follow the four steps, but to customize them according to the situation in each country or target area. Figure 2 shows a series of activities in Kenya, where the SHEP approach was developed, and in other countries. As shown in this figure, there are a wide variety of variations that follow the framework (steps) for implementing the SHEP approach but are specific to the situation in the target area. In the implementation of each activity, various innovations have been made according to the surrounding environment of farming and the extension system in each country.

Essential 4 Steps	Activities in Kenya	Activities in Other Countries
<b>1. Share goal with farmers.</b>	<ul style="list-style-type: none"> <li>- Selection of Target County</li> <li>- Sensitization Workshop</li> </ul>	<ul style="list-style-type: none"> <li>- Sensitization Workshop</li> <li>- Selection of Target Groups (Rwanda)</li> </ul>
<b>2. Farmers' awareness is raised.</b>	<ul style="list-style-type: none"> <li>- Participatory Baseline Survey</li> <li>- FABLIST Forum</li> <li>- Market Survey</li> </ul>	<ul style="list-style-type: none"> <li>- Participatory Baseline Survey</li> <li>- Needs Assessment (Malawi)</li> <li>- Market Survey</li> </ul>
<b>3. Farmers make decisions.</b>	<ul style="list-style-type: none"> <li>- Crop Selection</li> <li>- Action Plan Making</li> </ul>	<ul style="list-style-type: none"> <li>- Crop Selection</li> <li>- Crop Calendar Making</li> </ul>
<b>4. Farmers acquire skills.</b>	<ul style="list-style-type: none"> <li>- Training for Extension staff</li> <li>- Demand driven In-field trainings for farmers</li> </ul>	<ul style="list-style-type: none"> <li>- In-field Training</li> </ul>

**Figure 2: A series of activities based on four essential steps**



## RESULTS AND DISCUSSION

### Outcomes and Impacts

To date, in countries where the SHEP approach has been implemented, a number of impacts have been identified that contribute to improving farmers' livelihoods, along with the expected outcomes, such as increased horticultural productivity and income. For example, impacts reported at the field level include: repairing or building houses, purchasing mobile phones, bicycles, motorcycles, cars, and trucks, installing electricity to homes, funding children's education and reinvesting in agriculture (for example, purchasing irrigation pumps). Moreover, the farmers' awareness and behavior on marketing changed from "grow and sell" to "grow to sell" through activities such as market survey and crop selection, and gender relationship within the household improved from "one farm manager (husband) and one labor (wife)" to "management partner" through gender awareness training, among other important impacts reported.

In Kenya, three technical cooperation projects were implemented between 2006 and 2020, all of which increased the horticultural income (nominal value) of the target farmers [1]. For example, the Phase 3 "Smallholder Horticulture Empowerment and Promotion Project for Local and Up-scaling (SHEP PLUS)", which ended in 2020, increased the income of target farmers by 119% in the first year and 95% in the second year [10]. It has also been reported that many of the extension staff trained in the project are using SHEP approach to support farmers as part of their regular work, making it difficult to accurately determine the number of beneficiaries from such indirect support. Given the excellent outcomes and impact of the project at the field level, an impact evaluation using a Randomized Controlled Trial (RCT) was conducted during the same phase (Phase 3) to objectively estimate the true effects of the SHEP approach interventions. The results showed that the SHEP approach, on average, increased farmers' horticultural income by 70% over two years [11]. The SHEP approach was also found to be more effective with vulnerable farmers (those with female heads of households, lower levels of education and older age) and, in contrast to conventional agricultural extension, "common sense", was found to be irrelevant of experience in horticultural crop production prior to the intervention. Furthermore, it was found that stakeholder forums and gender awareness training played an important role in the series of activities in the SHEP approach, together with technical training for farmers. These findings suggest that market-oriented





agricultural extension, realized by the SHEP approach, can provide a pathway to improving the living standards of small-scale farmers through increased horticultural income [11].

In Ethiopia, “*The Project for Smallholder Horticulture Farmer Empowerment through Promotion of Market-Oriented Agriculture (Ethio-SHEP)*” collected and analyzed quantitative data to monitor changes in productivity and income of target farmers. In addition to this, Ethio-SHEP was the first to collect qualitative information using Most Significant Change (MSC), a participatory monitoring and evaluation method. This involved asking target farmers what were the most significant changes that occurred as a result of the project interventions, and stories were collected on qualitative outcomes/impacts, changes and challenges at the farmer level [12]. In Ethio-SHEP, government officials (district officers) and extension staff (Development Agent: DA) in the project implementing area collected stories of significant change from target farmers, discussed the stories collected, and selected the MSC in each area. One of the results, the selected MSC of the target farmer group in Jimma Zone, Oromia region, is presented below.

*“The increased income from vegetable sales has made a huge difference for me and my group, from daily meals to buying necessities. In the past, we had no cultivation skills, the harvest was low, and the vegetables were spoiled before they reached the market. Through the project’s technical training, we learned cultivation techniques such as nursery preparation and plant spacing, as well as marketing. Also, families, both men and women, are now engaged in productive activities. I bought a motor pump for 20,000 Ethiopian Birr and started growing vegetables three times a year. I also purchased a milling machine to further increase my family’s income.” (Farmer member)*

Thus, the behavioral changes in farmers brought about by the SHEP approach were also confirmed by qualitative monitoring and evaluation.

On the other hand, not only farm-level outcomes, but also positive impacts at the national and policy levels have been observed. In Senegal, for example, the SHEP approach was explicitly stated in policy documents, such as the “*Programme National de Relance de l’Horticulture (PNRH) 2020-2023*” and the “*Plan Stratégique de Développement (PSD) 2022-2025*.” This has led to the



mainstreaming of the SHEP approach, and elements of the approach are routinely incorporated into various programs/projects [13].

Furthermore, even during the coronavirus (COVID-19) pandemic and the ensuing economic crisis, SHEP target farmers continued market surveys as a central activity in the solution. A survey of SHEP target farmer groups in Kenya reported that about three-fourths of the 38 groups surveyed still conducted market surveys under the COVID-19 disaster and adjusted their horticultural crop production in response to crop changes and market demand (as of November 2020) [1]. A group of farmers in Tanzania changed their sales destination from hub markets to local markets and conducted market surveys in several locations in response to reduced demand in large horticultural markets due to border closures. As a result, they have acquired the know-how to sell their crops on a small-scale without relying on large markets. These examples demonstrate that even in the emergency situation of the COVID-19 pandemic, SHEP target farmers did not lose their entrepreneurial mindset and demonstrated resilience as “*self-reliant farmers*” who could respond to drastically changing market needs.

## Various Applications of the SHEP Approach

### 1. Utilization of SHEP Approach in other Fields

In recent years, the SHEP approach has been considered for application beyond the horticulture sub-sector. In “*The Project on Improved Extension for Value-added Agriculture (EVAP Phase 1, EVAP Phase 2)*” implemented in Palestine, the SHEP approach was applied to a wide range of products, including livestock and beekeeping [14]. Particularly in livestock production, Step 2 of the SHEP approach, “*Farmers’ awareness is raised*”, involved not only market survey, but also visits to outstanding, experienced farmers and information exchange with feed companies, which increased the target farmers’ willingness to adopt the knowledge and skills and led to an increase in farmers’ income. One target farmer said, “*After seeing the best farmers with my own eyes, I finally learned to trust the appropriate techniques and know-how. I am now putting those techniques into practice.*” In this way, the target farmers stated that the visits to the outstanding, experienced farmers were very stimulating and helped them improve their farming operations. The best farmers who were visited also commented on the tangible benefits, such as the joy of being of service to fellow livestock farmers and the increase in consumers due to being introduced as an outstanding, experienced farmers. In general, farmers tend



to be conservative; however, this is a good example of a farmer who changed by actually seeing and hearing about the farming practices of an outstanding farmer who was in the livestock business [14].

There are also cases of SHEP approach being used in reconstruction assistance in conflict-affected areas. In northern Uganda, where conflict has raged for more than 20 years, the SHEP approach is being used to support rural residents with limited experience in horticultural production through the “*Northern Uganda Farmers’ Livelihood Improvement Project (NUFLIP Phase 1, NUFLIP Phase2)*.” By incorporating activities that contribute to quality of life, such as creating a family vision and introducing training on household budgeting and food management, the project not only increased the agricultural income of the target residents, but also eliminated food shortages, reduced domestic violence, and provided school fees for children, among other identified benefits [15].

## **2. Utilization of the SHEP Approach by Development Partners, Private Companies and Relevant Organizations**

IFAD and JICA have been sharing knowledge and promoting joint action on support for small-scale farmers through the signing of a Memorandum of Cooperation (MoC) in the African agricultural sector in 2018 [16], and the Joint Declaration at TICAD VII the following year. In response, IFAD has begun to introduce and utilize the SHEP approach in its programs/projects supporting small-scale farmers around the world. In Malawi, for example, 25 target farmer groups are implementing the SHEP approach within the “*Programme for Rural Irrigation Development (PRIDE)*”, an irrigation program aimed at market-oriented agriculture [17]. In line with the program objectives, baseline surveys, market surveys, and crop selection were conducted with target farmers who grow not only horticultural crops but also rice, peanuts, sorghum and legumes [18]. This use of the SHEP approach by development partners has been driven by the fact that it is not a stand-alone program/project, but a complementary approach that can be utilized in any effort to improve the livelihoods of small-scale farmers.

The Sasakawa Africa Association (SAA) and JICA have signed a Memorandum of Cooperation (MoC) for collaboration in the field of agriculture in Africa in 2019 [19]. Through the MoC, it was confirmed that JICA will share its know-how and expertise on agricultural extension methods and appropriate technology transfer, including the SHEP approach. Accordingly, SAA plans to mainstream the SHEP approach



into its projects, and to date, the SHEP approach has been introduced in countries such as Uganda, Nigeria, Mali and Ethiopia. In Malawi, the Ministry of Agriculture conducted awareness raising training on the SHEP approach for lecturers and graduates of the Extension Department of Lilongwe University of Agriculture and Natural Resources (LUANAR), which is a long-time SAA partner [20].

Subsequently, two of the university's lecturers were mobilized for the "*Knowledge Co-Creation Program: Market-oriented Agriculture Promotion (Planning and Management)*" in November 2021, and efforts are underway to incorporate the SHEP approach into the curriculum of the Extension Department.

In recent years, the SHEP approach has been introduced in the private sector. In Bangladesh, seed supplier Malik Seeds Pvt. Ltd. used the SHEP approach as part of its seed sales promotion, simultaneously increasing farmers' horticultural income and improving dealers' sales. Since successful farmers who adopt the SHEP approach tend to expand their businesses by investing in agricultural inputs such as seeds and fertilizers, the seed suppliers will also benefit if providing technical guidance to farmers increases future commodity sales. This is a win-win case for both parties, as the farmers also learn the techniques and improve their productivity [21]. In Kenya, Powerhive Inc., a U.S. venture company that operates a mini-grid business combining solar power generation systems and storage batteries in non-electrified areas, conducted training for farmers using the SHEP approach in the hope of increasing rural residents' income and fostering a business mindset, thereby increasing electricity usage fees.

### **Issues and Challenges**

As mentioned above, the results and impact of the SHEP approach at the field level are unquestionably evident. However, challenges exist at the policy level in developing countries.

In South Africa, the Minister of Agriculture, Land Reform and Rural Development led a SHEP seminar for all nine provinces, following her attendance at the SHEP International Workshop held in February 2021, and promoted its effectiveness to all provincial agricultural department officials, extension staff and farmers. As a strong initiative of the Minister, the SHEP approach has spread across the country as a flagship effort, leveraging the government's regular extension budget, and the progress and results of the SHEP approach are constantly reported at meetings of the ministry's extension officials. In contrast, in many other developing countries,



attention to the “*low-profile*” soft elements of agricultural extension remains low, and the emphasis tends to be on the “*high-profile*” hard elements of agricultural infrastructure development. Hence, agricultural development budgets are often allocated to agricultural infrastructure development, and agricultural extension budgets are often inadequate. The SHEP approach is a very simple and comprehensive approach to improving the farming style of small-scale farmers, but it faces the challenge of unavailability of the government’s agricultural extension budget, which is the main source for its implementation.

In addition, many developing country governments recognize that agricultural extension should be provided in combination with agricultural inputs, and both government officers, including extension staff, and farmers fall into the so-called “*dependency syndrome*” in which they place high expectations on the provision of materials such as seeds, fertilizers, pesticides and agricultural machinery. This has raised the bar for intervention in the SHEP approach, which is a sustainable and long-term useful initiative that promotes farmers’ self-reliance. To address these issues, it will be necessary to continue to expand the effectiveness of the SHEP approach from multiple perspectives in order to create an environment in which agricultural and rural development programs/projects can continue without compromising farmers’ independence.

## CONCLUSION AND RECOMMENDATIONS FOR DEVELOPMENT

The SHEP approach is not a “*panacea*” that will solve all agricultural extension challenges in developing countries. This is because the approach is the framework within which agricultural extension is implemented, and its practice alone does not produce results. For example, for farmers who do not own land, even if productivity and income improvements are achieved through the implementation of the SHEP approach, may not necessarily benefit the farmers concerned. However, are there outstanding farmers among rural residents trying to make a living from agriculture who are blind to market trends? Moreover, are there any good agricultural extension services that do not take into account the motivation of farmers? In order to continue agricultural and rural development programs/projects that promote farmers’ self-reliance, it is necessary to continuously extract the outcomes and impact of the SHEP approach at the field level and promote them to policy makers in developing country governments. Furthermore, it is important not only to disseminate and expand the SHEP approach itself, but also for developing country



governments to take the initiative in internalizing, institutionalizing, and normalizing the concept of this approach into their own agricultural extension systems.

What is conveyed in the SHEP approach would be very obvious. It is our hope that this approach will be widely adopted and promoted as the norm in agricultural extension, so that more self-reliant farmers will be able to confront market changes with strength.

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