

## **An Assessment of Knowledge Management Training for Haang Rice Production Community Enterprise Groups in Sakon Nakhon Province**

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### **Abstract**

The objectives of this research were to provide training and to assess results of knowledge management training for Haang Rice Production Community Enterprise Groups in Sakon Nakhon province. Two groups of the sample were studied. The quantitative data were analyzed by using statistical application software to obtain two descriptive statistics namely means and standard deviations. Meanwhile, the qualitative data were analyzed by using content analysis. The study results revealed that the overall satisfaction level of the participants toward the training was at a high level ( $\bar{x} = 4.38$ , S.D. = 0.55). Assessments the output of the training revealed that: 1) For the procedure aspect, Haang Rice Production Community Enterprise Groups had changed their procedures of Haang rice production by taking notes of the data and putting more emphasis on sanitation. 2) For the products aspect, business partnership has taken place between the Haang Rice Production Community Enterprise Groups and an entrepreneur who ordered Haang rice from the groups on a monthly basis. 3) For the effects aspect, the groups have invited more villagers to become members, resulting in an increase in employment, paddy trading, and quantity of Haang rice in the market. 4) For the sustainability aspect, the groups derived an idea to produce organic Haang rice, which the market demand tends to increase. They aimed to make their products receive a certificate of Good Manufacturing Practice, Food and Drug Administration, and Geographical Indication.

**Keywords:** Knowledge Management; Haang Rice; Community Enterprise Group

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## Introduction

Haang rice<sup>1</sup> production is a local wisdom of the Phu Thai tribe living in the upper part of the Northeastern region, Thailand, especially in Sakon Nakhon province, which is recognized as the origin of Haang rice. Products of Haang rice include both normal rice and sticky rice. Compared to capsule-form supplements and white rice, Haang rice has a very high nutritional value. Its high content of GABA is very beneficial to preventing Alzheimer's disease, controlling blood sugar level, and slowing down the aging process. Haang rice production is a natural process. Therefore, it is an option for health-lover individuals. With its relatively high price, Haang rice can also benefit the farmer to gain higher income from this value-added product (Boonchom, 2009). Sakon Nakhon Provincial Agricultural Extension Office report in 2013 that Haang Rice Production Community Enterprise Groups in Sakon Nakhon province could produce Haang rice for about 2,242 tons, with a sale value of 55,836,000 baht. The market needs Haang rice 4,120 tons (Sakon Nakhon Provincial Agricultural Extension Office, 2011). This figure implies the capacity of Haang rice production in Sakon Nakhon province is still inadequate to meet the market demand.

Knowledge management is a process to acquire, develop, share, and utilize knowledge efficiently (Wikipedia, 2014). It allows several sources of knowledge such as traditional Thai wisdom, tacit knowledge within gurus, technological knowledge, and knowledge from various sciences to be managed to become principal driving factors for social and economic development of the country. With effective knowledge management, the structure of Thai economy can cope with changes and continue with development sustainably. Therefore, knowledge management plays a crucial role in improving potential of Thai people to be able to critically think, analyze, create, and imagine. With these abilities, Thai labor will be capable workers who can understand problem integrally and form a strong wisdom infrastructure. It will be a formation of knowledge-based agricultural society that people receive opportunities to enable their lifelong learning. People will be promoted and supported to develop their local wisdom that leads to extended strength of the agricultural sector, ready for business competition. As a result, Thailand will have a strong foundation of economy and society that allows it to maintain the rate of economic growth with the "knowledge-based society and economy." The country will be elevated to be among the group of countries whose economies are driven by innovation and knowledge (Office

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<sup>1</sup> Haang rice refers to the rice paddy that has been soaked in water for 24 hours, steamed for 1 hour, sunned for 1-2 days to be completely dry, and finally milled as brown rice.

of the National Economic and Social Development Board, 2010). Knowledge management emphasizes on the creation and the utilization of knowledge simultaneously. This knowledge attached to the work and become enhanced as it is circulated along working. Meanwhile, the members who collaboratively manage the knowledge will keep learning and gaining more knowledge continuously (Prasertchai, 2011). Another knowledge management tool is training. Training is one way an organization uses investment to increase new knowledge and skills for employees. In which employees can apply new knowledge and skills to work in order to increase productivity for the organization (Coff & Lavery, 2007).

Due to the importance of knowledge management and the mentioned problem of Haang rice production, knowledge management is likely to be a promising approach for solving the problem. This research was conducted as the second phase following the first phase, which studied on best practices of the three groups that passed the criteria of outstanding capacity assessment (at the five-star level). The study results gained knowledge regarding Haang rice production, Haang rice marketing, and the knowledge management process of Haang Rice Production Community Enterprise Groups in Sakon Nakhon province. The study also reveals important issues on the market has a high demand on Haang rice produced from organic rice. The following training courses were included in this research.

### **Objectives**

1. To provide training on Haang rice production to Haang Rice Production Community Enterprise Groups in Sakon Nakhon province
2. To assess the output of the training on knowledge management regarding Haang rice production of Haang Rice Production Community Enterprise Group in Sakon Nakhon province

### **Research design and methods**

The knowledge management of Haang Rice Production Community Enterprise Groups in Sakon Nakhon province was performed with the following methodology.

1. Operational procedures

- 1.1 Haang Rice Production Community Enterprise Groups in Sakon Nakhon province were selected to attend the training based on their interest and their problems about Haang rice production and marketing. The selected two groups for this experiment were Kham Bo Tai Village Golden Fragrant

Rice Production Housewife Group, Kham Bo Sub-district, Waritchaphum District, Sakon Nakhon province, and Na Lao Village Germinated Brown Rice Community Enterprise Group, Tao Ngoi District, Sakon Nakhon province.

1.2 The knowledge management training was organized for the two experimental Haang Rice Production Community Enterprise Groups. The training's contents consist of 3 topics namely Organic rice growing (midstream-level knowledge management), Haang rice production (midstream-level knowledge management), and Marketing (upstream-level knowledge management). The presenter for the Organic rice growing training was an expert in organic rice. The presenter for the Haang rice production training was the President of Na Bo Village Haang Rice Production Community Enterprise Group, Pla Loh Sub-district, Waritchaphum District, Sakon Nakhon province, which is a high-quality Haang rice production group. Finally, the presenter for the Marketing training was one of the research team who has expertise in agricultural business.

1.3 Data regarding satisfaction of participants were collected after the training by using a 5-level rating scale questionnaire to measure satisfaction levels of the respondents. The scoring criteria were as follows.

Level 5	refer/indicates to	the highest level of satisfaction;
Level 4	refer/indicates to	a high level of satisfaction;
Level 3	refer/indicates to	a moderate level of satisfaction;
Level 2	refer/indicates to	a low level of satisfaction; and
Level 1	refer/indicates to	the least level of satisfaction.

1.4 Follow-ups and counseling services were provided to the experimental Haang Rice Production Community Enterprise Groups when a period of 3 months after the training has passed. Additional data collection was performed by means of interviews and non-participation observation. Contents of the interviews consisted of 4 aspects namely Procedure aspect<sup>1</sup>, Products aspect<sup>2</sup>, Effects

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<sup>1</sup> Procedure refers to a result derived from the knowledge management training on Haang rice production in a form of process that leads to products, effects, and sustainability.

<sup>2</sup> Products refer to results obtained from the knowledge management training on Haang rice production that occur to participants of the training in terms of thoughts, feelings, knowledge, products, and work pieces from the project.

aspect<sup>1</sup>, and Sustainability aspect<sup>2</sup>. The interviewees comprised 3 persons from each group, i.e. the group's head and two members.

## 2. Data analysis

2.1 Quantitative data analysis was conducted with data collected from the satisfaction questionnaire. By using statistical application software, two descriptive statistics namely means and standard deviations were obtained. Interpretation of the mean scores from the 5-level rating scale was based on these following criteria (Srisa-ard, 2010).

Mean scores of 4.51 – 5.00	refer to	satisfaction at the highest level.
Mean scores of 3.51 – 4.50	refer to	satisfaction at a high level.
Mean scores of 2.51 – 3.50	refer to	satisfaction at a moderate level.
Mean scores of 1.51 – 2.50	refer to	satisfaction at a low level.
Mean scores of 1.00 – 1.50	refer to	satisfaction at the minimum level.

2.2 Qualitative data analysis was conducted with data collected from the interviews and the **non-participant observations**. This analysis was based on the Content Analysis method, which involves generating inferences, interpretation, and data classification (Chantavanich, 2010).

## Results

### 1. Overall satisfaction toward the project

The participants comprising 14 members of Kham Bo Tai Village Golden Fragrant Rice Production Housewife Group and 17 members of Na Lao Village Germinated Brown Rice Community Enterprise Group had a high level of overall satisfaction toward the training project ( $\bar{x} = 4.38$ , S.D. = 0.55). Their mean satisfaction toward the Administration aspect was at a high level ( $\bar{x} = 4.17$ , S.D. = 0.63) and toward the Benefits Received from Knowledge Transfer aspect was at the highest level ( $\bar{x} = 4.59$ , S.D. = 0.46), as shown in Table 1.

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<sup>1</sup> Effects refer to outputs that occur to participants of the knowledge management training on Haang rice production, as consequence of products that have impact on the relevant individuals, groups, organizations, communities, and societies.

<sup>2</sup> Sustainability refers to long-term outcomes of the knowledge management training on Haang rice production that persist in participants of the project and related individuals, groups, organization, communities, and societies.

**Table 1** Satisfaction of the whole training participants toward the project

Items	$\bar{X}$	S.D.	Level
<b>Administration aspect</b>	<b>4.17</b>	<b>0.63</b>	<b>High</b>
1. Knowledge and understanding about knowledge transfer <u>before</u> the training	3.55	0.86	High
2. Knowledge and understanding about knowledge transfer <u>after</u> the training	4.35	0.61	High
3. Appropriateness of the knowledge transfer training date	4.23	0.73	High
4. Appropriateness of the knowledge transfer training period	4.25	0.66	High
5. Appropriateness of the knowledge transfer training venue	4.28	0.68	High
6. Appropriateness of the knowledge transfer training topics	4.30	0.70	High
7. Coordination of the project organizer	4.25	0.70	High
<b>Benefits Received from Knowledge Transfer aspect</b>	<b>4.59</b>	<b>0.46</b>	<b>Highest</b>
1. Gaining more knowledge from the contents of the knowledge transfer training	4.80	0.41	Highest
2. The contents being beneficial for participants of the knowledge transfer training	4.58	0.49	Highest
3. Enhancing development of knowledge/skills within the group	4.45	0.62	High
4. Benefits received from attending the knowledge transfer training in general	4.53	0.61	Highest
<b>Total</b>	<b>4.38</b>	<b>0.55</b>	<b>High</b>

#### 1.1 Satisfaction of Kham Bo Tai Village Golden Fragrant Rice Production Housewife Group

Kham Bo Tai Village Golden Fragrant Rice Production Housewife Group (Kham Bo Sub-district, Waritchaphum District, Sakon Nakhon province) had the highest level of overall satisfaction toward the knowledge transfer training ( $\bar{x} = 4.54$ , S.D. = 0.55). The group's mean satisfaction toward the Administration aspect was at a high level ( $\bar{x} = 4.36$ , S.D. = 0.63) and toward the Benefits Received from Knowledge Transfer aspect was at the highest level ( $\bar{x} = 4.72$ , S.D. = 0.46), as detailed in the following table.

**Table 2** Satisfaction of Kham Bo Tai Village Golden Fragrant Rice Production Housewife Group

Items	$\bar{X}$	S.D.	Level
<b>Administration aspect</b>	<b>4.36</b>	<b>0.63</b>	<b>High</b>
1. Knowledge and understanding about knowledge transfer <u>before</u> the training	3.85	0.81	High
2. Knowledge and understanding about knowledge transfer <u>after</u> the training	4.60	0.50	Highest
3. Appropriateness of the knowledge transfer training date	4.35	0.67	High
4. Appropriateness of the knowledge transfer training period	4.40	0.60	High
5. Appropriateness of the knowledge transfer training venue	4.40	0.60	High
6. Appropriateness of the knowledge transfer training topics	4.50	0.61	Highest
7. Coordination of the project organizer	4.40	0.60	High
<b>Benefits Received from Knowledge Transfer aspect</b>	<b>4.72</b>	<b>0.46</b>	<b>Highest</b>
1. Gaining more knowledge from the contents of the knowledge transfer training	4.80	0.41	Highest
2. The contents being beneficial for participants of the knowledge transfer training	4.70	0.47	Highest
3. Enhancing development of knowledge/skills within the group	4.70	0.47	Highest
4. Benefits received from attending the knowledge transfer training in general	4.70	0.47	Highest
<b>Total</b>	<b>4.54</b>	<b>0.55</b>	<b>Highest</b>

### 1.2 Satisfaction of Na Lao Village Germinated Brown Rice Community Enterprise Group

Na Lao Village Germinated Brown Rice Community Enterprise Group (Tao Ngoi District, Sakon Nakhon province) has a high level of overall satisfaction toward knowledge transfer training ( $\bar{x}$  = 4.22, S.D. = 0.70). The group's mean satisfaction toward the Administration aspect was at a high level ( $\bar{x}$  = 3.99, S.D. = 0.78), and toward the Benefits Received from Knowledge Transfer aspect was also at a high level ( $\bar{x}$  = 4.45, S.D. = 0.61), as detailed in the following table

**Table 3** Satisfaction of Na Lao Village Germinated Brown Rice Community Enterprise Group

Items	$\bar{X}$	S.D.	Level
<b>Administration aspect</b>	<b>3.99</b>	<b>0.78</b>	<b>High</b>
1. Knowledge and understanding about knowledge transfer <b>before</b> the training	3.25	0.91	High
2. Knowledge and understanding about knowledge transfer <b>after</b> the training	4.10	0.72	High
3. Appropriateness of the knowledge transfer training date	4.10	0.79	High
4. Appropriateness of the knowledge transfer training period	4.10	0.72	High
5. Appropriateness of the knowledge transfer training venue	4.15	0.75	High
6. Appropriateness of the knowledge transfer training topics	4.10	0.79	High
7. Coordination of the project organizer	4.10	0.79	High
<b>Benefits Received from Knowledge Transfer aspect</b>	<b>4.45</b>	<b>0.61</b>	<b>High</b>
1. Gaining more knowledge from the contents of the knowledge transfer training	4.80	0.41	Highest
2. The contents being beneficial for participants of the knowledge transfer training	4.45	0.51	High
3. Enhancing development of knowledge/skills within the group	4.20	0.77	High
4. Benefits received from attending the knowledge transfer training in general	4.35	0.75	High
<b>Total</b>	<b>4.22</b>	<b>0.70</b>	<b>High</b>

## 2. Post-training follow-ups

Follow-ups were conducted with the two Haang Rice Production Community Enterprise Groups after a period of 3 months following the Haang rice production knowledge management training. The assessment results from the follow-ups with both groups are summarized below.

2.1 For the procedure aspect, it was found that Kham Bo Tai Village Golden Fragrant Rice Production Housewife Group has changed its procedures in 3 main points namely: 1) for the procedures of its Haang rice production, it now has adopted the Haang rice production process of Na Bo Haang Rice Production Group, especially the method of turning over paddy grain during the steaming process. With this method, the paddy that has been soaked in water was put in a Huad<sup>1</sup> and steamed under the boiling point of water for about 40 – 60 minutes (until the paddy becomes soft). When it is noticeable that the paddy is quite well cooked, it will be turned over so that all grains are cooked thoroughly. This can be done by putting down the Huad being steamed and pouring the paddy into another Huad that has been prepared for this procedure. Next, 2 liters of water is poured onto the paddy inside the Huad in order to clean the grains and cool them down so that the Huad can be lifted with ease and the grains are well cooked evenly. 2) The group started to take notes with better organization of its data, which used to be inconsistently recorded. In addition, the research team advised the group to summarize its monthly sale in order to know the total sale of each month. 3) Regarding sanitation, the group has moved its pig barns out of the area used for Haang rice production due to the impact on cleanness of its Haang rice, which is a major point of concern during the assessment by a Public Health team. However, the group still needs to adjust quite much in terms of cleanness because the area used for producing Haang rice is its household area that is abundant with flies, dogs, and chickens. Meanwhile, Na Lao Village Germinated Brown Rice Community Enterprise Group also adjusted its Haang rice production procedures in two parts. For the part of paddy steaming, it used to use a stick to bring the bottom paddy up. However, this technique is inefficient in taking all paddy at the bottommost up to the top; resulting in overcooked and softened paddy. After the training, the group adopted the steaming technique of the presenter of this midstream-level knowledge management instead. For the part of paddy sunning, the paddy that has been steamed is now sunned at the drying area. A wood stick is used to level the paddy grains. When the paddy has become partially dry, the wood stick is used for turning it over regularly in order to obtain thoroughly and evenly dry paddy. After 1-2 days, the paddy will be completely dry, and will be stored in bags waiting to be milled to derive Haang rice.

2.2 For the products aspect, it was found that Kham Bo Tai Village Golden Fragrant Rice Production Housewife Group received more order of Haang rice due to its business partnership with Na

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<sup>1</sup> Huad refers to a bamboo basket used for steaming sticky rice.

Bo Village Haang Rice Production Community Enterprise Group. Previously, the Kham Bo Haang rice group encountered a marketing problem in selling its Haang rice. However, the group currently produces Haang sticky rice and sells via business partnership with an order of about 600 kg at a price of 45 baht/kg. The group used to be able to produce and sell for only about 200 kg in the past. In case of Na Lao Village Germinated Brown Rice Community Enterprise Group, it received an order for Haang Riceberry rice from its business partnership for 1,000 kg at a price of 50 baht/kg. The rice will be delivered in two shipments with 500 kg each.

2.3 For the effects aspect, it was found that after the knowledge management training on Haang rice production, business partnerships have occurred between Na Bo Village Haang Rice Production Community Enterprise Group with two Haang Rice Production Community Enterprise Groups that received the training. In case of Kham Bo Tai Village Golden Fragrant Rice Production Housewife Group, after receiving Haang rice order from business partnership, the group has invited more villagers to join membership and help produce Haang rice for sale. Six villagers showed interest to join the Haang rice production, although they could do so only after the end of this rice farming season. In case of Na Lao Village Germinated Brown Rice Community Enterprise Group, after having received the order from business partnership for as much as 1,000 kg, the members will need to work much more on the production process. That also means a higher income of the working members, who will receive 6 baht for each kilogram of Haang rice that they could produce. In addition, the group's members and its network will get more income from selling Riceberry paddy at the agreed price of 18 baht/kg to Na Nok Khao village, where Phu Phan Royal Development Study Centre of Sakon Nakhon province is located. These phenomena lead to increasing numbers of paddy markets and Haang rice products in the markets.

2.4 For the sustainability aspect, it was found that, after receiving the knowledge management training on Haang rice production and subsequently having business partnership that allows it to enhance its production capacity, Kham Bo Tai Village Golden Fragrant Rice Production Housewife Group considers about sustainability of its production. The group now has an idea to produce organic Haang rice which the market demand trends to increase. It aims to make its Haang rice pass the standard of Thai Food and Drug Administration (FDA), the criteria of Good Manufacturing Practice (GMP) and receive a symbol of Geographical Indication (GI). In case of Na Lao Village Germinated Brown Rice Community Enterprise Group, for sustainability of its business partnership, the group has to produce Haang rice that meets the standard. In addition, the group needs to be developed to become

a learning source on Haang rice production so that interested persons can observe, study, and buy products as an additional distribution channel of Haang rice in Sakon Nakhon province. In the viewpoint business partnership, stated that, if both Haang Rice Production Community Enterprise Groups could produce Haang rice that is of high quality and free from contaminants, she would buy Haang rice from both groups continuously.

### **Conclusion and Discussion**

According to satisfaction levels toward the knowledge management training on Haang rice production, the overall satisfaction of the participants toward the knowledge transfer was found the Benefits Received from Knowledge Transfer aspect being at the highest level ( $\bar{x} = 4.59$ , S.D. = 0.46). Regarding the part of post-training follow-ups with both Haang Rice Production Community Enterprise Group, the findings are as follows. 1) For the Procedure aspect, Kham Bo Village Haang Rice Production Community Enterprise Group was found to adjust its Haang rice production process, data recording practice, and sanitation management. 2) For the Products aspect, the Haang Rice Production Community Enterprise Groups were found to establish business partnerships that lead to new orders of Haang rice products. 3) For the Effects aspect, it was found that the knowledge transfer had led to invitation of neighbors in the community to join the group's membership, more employment, enhanced paddy trading, and increased Haang rice products in the market. 4) For the Sustainability aspect, the business partnerships between the Haang Rice Production Community Enterprise Groups were found to bring about intention to promote sustainability of Haang rice production. The Haang Rice Production Community Enterprise Groups aim to produce organic Haang rice that receives a high demand from the market, and will keep developing the products to meet the standards of Thailand Food and Drug Administration (FDA), the criteria of Good Manufacturing Practice (GMP), and receive a symbol of Geographical Indication (GI). They also intend to maintain quality of their Haang rice production and develop the area to become a learning source of Haang rice production. According to the assessment results regarding satisfaction toward the knowledge management training on Haang rice production and the follow-ups after the knowledge management training with both Haang Rice Production Community Enterprise Groups, the participants paid the highest priority on benefits received from knowledge transfer. This should be because the knowledge they received could solve the problems of their groups, and this knowledge that can truly be applied to their work. Additionally, since the presenter of this

midstream-level knowledge management is a well-known entrepreneur who is successful in Haang rice production, the attending Haang Rice Production Community Enterprise Groups gained confidence and acceptance in Haang rice production. This finding is in accordance with the Knowledge Management Institute (2007) who states that knowledge sharing emphasizes on managing relationships among human beings, and good relationships facilitate knowledge share. An important issue that is a core of knowledge sharing is the principle of word-of-mouth communication: i.e. people will inform their friends after having practiced and witnessed a good result. This inference is also in accord with Thangviwutra (2010) who explains that knowledge management can help an organization to achieve at least 4 goals simultaneously namely goals of the operation, goals of human development, goals of developing to become an organization of learning, and goals of being a community or a team that promote compassion at work and strength of the organization. Moreover, Horne et al. (2005) elaborates knowledge management is a tool to help people receive knowledge that is accurate and meets their specific requirements in a timely manner. The received knowledge can then be utilized, shared, value-added, and enhanced for higher capacity at work, which will lead to success in achieving the goals about innovative creation and profit of the organization.

## **Suggestions**

### **1. General suggestions**

1.1 This project should extend by organizing more knowledge transfer training to newly established Haang rice groups or improvement-needed groups in Sakon Nakhon province so that there are more business partnerships that can promote and develop Haang rice production of Sakon Nakhon for higher quality and sustainability.

1.2 The follow-ups after the knowledge management training on Haang rice production were conducted for a certain period only. For better outcomes, the follow-ups should continue in a long term to obtain more in-depth data about changes occurring to the Haang Rice Production Community Enterprise Groups.

### **2. Policy suggestions**

#### **2.1 Policy suggestions for Haang Rice Production Community Enterprise Groups**

2.1.1 Haang Rice Production Community Enterprise Groups should set their strategies on knowledge management in various issues starting from the downstream level to the midstream and upstream knowledge management eventually. Methods for handling each issue should be specified

such as how to find learning sources, how to apply learning approaches, how to acquire knowledge, etc.

2.1.2 Haang Rice Production Community Enterprise Groups must strictly implement the specified knowledge management strategies into practice so that the operations yield maximum efficiency for Haang rice production.

2.1.3 Haang Rice Production Community Enterprise Groups should improve the knowledge management activities that were unsuccessful. Such improvement can be done by changing plans or policies to match the assessment results of the knowledge management. Successful activities should be maintained, and new knowledge management activities may be added into the plan of next year.

## 2.2 Policy suggestions for the government sector

2.2.1 The relevant governmental organizations should specify their roles, functions, and missions in promoting knowledge management to community enterprise groups. Knowledge that is local wisdom about Haang rice production in Sakon Nakhon province should be gathered. This can be done via the establishment of “Sakon Nakhon Haang Rice Center” and a database system dedicated for storing knowledge about Haang rice that can be used to publicize Haang rice for greater recognition.

2.2.2 The government sector should specify policies to promote Haang rice production especially for newly established Haang Rice Production Community Enterprise Groups so that they can do the Haang rice business successfully and sustainably. A solution for this goal is to endorse their business partnerships with a Haang Rice Production Community Enterprise Group that has already been successful.

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