

**INDUSTRIALIZATION OF WHITE OYSTER MUSHROOM  
CULTIVATION (PLEUROTUS OSTREATUS) AS A STRATEGIC  
SOLUTION TO ADDRESS STUNTING IN WINDUAJI VILLAGE,  
PAGUYANGAN DISTRICT, BREBES REGENCY**

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**Abstract**

Stunting is a chronic malnutrition problem caused by inadequate nutritional intake over an extended period. Winduaji Village is classified as an area of extreme poverty with a high prevalence of stunting determinants. There is a need for information dissemination on stunting. The methods used include education on stunting, parenting practices, positive coping, behavioral change communication, and training on creating food products from processed mushrooms, dry cakes, wet cakes, and business management. The target audience consists of 21 community health cadres from Rumah Desa Sehat (RDS) and 60 families in extreme poverty. The goal of the activity is to improve the skills of RDS cadres in assisting impoverished families and to increase their knowledge about stunting prevention efforts, as well as to enhance their ability to develop businesses using processed oyster mushrooms. This activity is part of the Kosabangsa program by DRTPM Ristek Dikti in 2024, conducted from September to November 2024 in Winduaji Village, Paguyangan District, Brebes Regency. The results show an increase in RDS cadres' knowledge of stunting, behavior change communication, and business management. Families in extreme poverty gained understanding of stunting prevention measures and became able to practice making supplementary foods from processed oyster mushrooms, dry cakes, and wet cakes. An evaluation of this activity needs to monitor the outcomes to ensure the Kosabangsa program positively impacts impoverished communities with stunted children.

**Keywords:** Extreme Poverty, Empowerment, Oyster Mushrooms, Stunting

## INTRODUCTION

Stunting is a chronic malnutrition issue caused by inadequate nutritional intake over a prolonged period due to food that does not meet nutritional needs. Stunting can begin as early as the fetal stage and only becomes apparent when a child reaches two years of age (Migang & Manuntung, 2021), (Beal et al., 2018). Stunting, if not accompanied by catch-up growth, leads to impaired growth. Stunting is a public health issue linked to an increased risk of illness, mortality, and delays in motor and mental development (Kesehatan et al., 2020), (Valeriani et al., 2022).

Implementing a consumption pattern in terms of food type, quantity, and variety can help prevent nutritional issues in children, particularly stunting, which is currently identified as a top global health priority (Regency et al., 2024). Insufficient intake of protein and energy among children can have long-term effects, making it challenging for children, as the nation's future generation, to contribute to economic development. This also poses a serious threat to economic growth and well-being in Indonesia (Regency et al., 2024), (Purbowati et al., 2021).

Winduaji Village is among the villages with a high prevalence of stunting determinants. Based on environmental health conditions, 24.5% of households live in uninhabitable housing (RTLH), 21% have unhealthy latrines, and open defecation is still practiced in open water areas. In terms of population characteristics, the majority have low education levels, with 36.20% only completing elementary school or its equivalent, and 11.43% working as casual laborers. Over the past three years, stunting cases have decreased but not significantly and remain below the WHO target, reducing from 175 cases in 2022 to 125 cases in 2024 (Dewi & Fuad, 2022). Regarding families with stunted children, there are 60 households in extreme poverty with stunted toddlers in Winduaji Village that require focused attention. From a psychosocial perspective, there is a stigma that having a stunted child is shameful, which discourages families from being open with healthcare providers and from accepting supplementary feeding (PMT).

The partners involved in this activity are members of the community focused on empowerment, specifically the Rumah Desa Sehat (RDS) group. The RDS group consists of 21 members, including members of the Family Welfare Program (PKK), health cadres, and kindergarten teachers. They collaborate with the village government and the Paguyangan Health Center to support families with stunted toddlers by providing supplementary feeding (PMT) for 90 days, based on a nutritionist's prescription from the health center. RDS cadres have participated in training on infant and young child feeding (PMBA) but have not yet received training in behavioral change communication to motivate families with stunted toddlers.

RDS cadres aim to empower 60 households in extreme poverty with stunted toddlers to improve their living standards by developing various businesses, especially those related to mushroom cultivation. RDS cadres also need business management knowledge and skills to assist these families in expanding their enterprises.

The goal of this community service project is to empower RDS cadres to support families in extreme poverty with stunted toddlers through educational activities on stunting, parenting, positive coping, behavioral change communication, and business management. Additionally, the project involves educating these impoverished families on stunting, parenting, positive coping, and behavioral change communication; as well as training them on making PMT using processed mushrooms, as well as wet and dry cakes made from white oyster mushrooms, as

business opportunities to generate additional income.

## **IMPLEMENTATION METHOD**

This activity is part of the Kosabangsa DPRTM program. The target participants are 21 Rumah Desa Sehat (RDS) cadres, consisting of members of the Family Welfare Program (PKK), health cadres, and kindergarten teachers. Additionally, the program aims to reach 60 households in extreme poverty with stunted toddlers.

The activity is implemented through educational sessions and hands-on practice. The steps of the activity consist of the Preparation Stage, the Activity Stage, and the Evaluation and Monitoring Stage.

### **1. Preparation Stage**

In this stage, a series of activities were conducted, including socialization and a Focus Group Discussion (FGD) involving village midwives, PKK, cadres, and mothers of stunted toddlers. This discussion is intended to facilitate problem-solving and consensus on stunting issues among toddlers.

### **2. Implementation Stage**

- a. Dissemination of behavior change information on stunting, parenting, positive coping, and behavior change communication, as well as motivation to create a clean and healthy environment, through educational sessions for RDS cadres and households in extreme poverty with stunted toddlers on stunting, parenting, positive coping, and behavior change communication.
- b. Provision of equipment and production materials for white oyster mushroom cultivation, mushroom-based products, wet cakes, and dry cakes.
- c. Dissemination of information and innovative technology for white oyster mushroom cultivation, the preparation of various mushroom-based products, wet cakes, and dry cakes with high protein content intended for sale to increase income. This is done through training on processing oyster mushrooms as a PMT (supplementary food) menu, as well as on making dry and wet cakes for households in extreme poverty with stunted toddlers.
- d. Strengthening of white oyster mushroom cultivation businesses, mushroom processing businesses, and wet and dry cake businesses to increase the income of 60 impoverished households with stunted toddlers through the provision of production equipment and business management guidance.

### **3. Evaluation Stage**

In this community service activity, an observational approach was used to measure the knowledge of RDS cadres regarding stunting, parenting, and behavior change communication techniques; business management, group management, administration, and finance. For households in extreme poverty with stunted toddlers, the evaluation aimed to determine whether they were skilled in making processed oyster mushroom products as PMT (supplementary food), dry cakes, and wet cakes as business production materials, as well as in business management to increase income.

## RESULTS AND DISCUSSION

This community service was carried out under limited conditions. Most of the extreme poverty households with stunted toddlers in Winduaji Village, Paguyangan District, Brebes Regency are located far from the district center. Therefore, many of the activities were conducted at the residents' homes to prevent the target audience from refusing to attend the village hall.

The process of conducting the Focus Group Discussion (FGD) and socialization of all activities was carried out with 24 RDS partners, and attended by village officials, to discuss the issues, problem-solving, and reaching a consensus on the problems related to stunted toddlers. The FGD and socialization were held on September 10, 2024.



**Figure 1. FGD and Socialization of All Activities Conducted for RDS Partners**

Source: Kosabangsa Researcher Documentation

Winduaji Village is still classified as a village with a high prevalence of stunting determinants, based on poor environmental health conditions (24.5% of households live in uninhabitable housing, 21% have unhealthy latrines, and open defecation is still practiced in open water areas), as well as low education and economic levels. The negative stigma surrounding stunting also causes mothers of stunted toddlers to refuse receiving supplementary feeding (PMT) from the health center. Therefore, a dissemination of behavior change information regarding stunting, parenting, positive coping, behavior change communication, and motivation to create a clean and healthy environment was carried out on October 21, 2024, with the aim of improving the knowledge and motivation of mothers.

To measure the level of knowledge among mothers in extreme poverty households with stunted toddlers, a pre-test and post-test were conducted on knowledge about stunting, parenting, positive coping, behavior change communication, and motivation for creating a clean and healthy environment. Below are the results of the knowledge assessment for mothers in extreme poverty households with stunted toddlers:

**Table 1. Knowledge of Mothers in Extreme Poverty Households About Stunting, Parenting, Positive Coping, and Behavior Change Communication, as well as Motivation for Creating a Clean and Healthy Environment**

Level of Knowledge	Pretest	Posttest
High	0 (0 %)	5 (29%)
Moderate	3(18%)	7 (41%)
Low	14 (82%)	5 (29%)

Based on Table 1, it shows an increase in knowledge among mothers in extreme poverty households with stunted toddlers. This indicates that health education is effective in improving knowledge. This is also in line with Notoatmodjo (2014), who explains that knowledge is the result of awareness, and this occurs after a person senses through human senses such as sight, hearing, smell, taste, and touch. Some knowledge is acquired through the eyes and ears. Cognitive knowledge is a very important domain in the form of a person's actions (overt behavior). Behavior is based on knowledge (Johariyah & Mariati, 2018).

Furthermore, on October 24, 2024, the activity of providing equipment and production materials for the culinary business of white oyster mushroom processing was carried out for 15 households in extreme poverty with stunted toddlers. This was also accompanied by the dissemination of information and technology transfer on the production of various mushroom-based products and culinary training. The result of this activity was the formation of a mushroom culinary business group, including mushroom meatballs, mushroom nuggets, grilled mushroom satay, grilled mushroom meatballs, mushroom chips, and white oyster mushroom pudding. The next target of this activity is for 25% of the trained households to have small-scale mushroom processing businesses.



**Figure 2. Delivery of Equipment and Production Materials for the Mushroom Culinary Business**

Source: Kosabangsa Researcher Documentation

Oyster mushrooms, as a raw material for healthy food, are widely produced by the community in Winduaji Village. Therefore, oyster mushrooms were chosen as the food processing ingredient for making PMT (supplementary food), dry cakes, and wet cakes to increase income. Oyster mushrooms, as a local food source, can serve as an alternative healthy food option to support sensitive nutrition interventions through food access (Regency et al., 2024), (Zulfarina et al., 2019). Several studies have revealed that white oyster mushrooms contain compounds with antidiabetic, antibacterial, anticholesterol, antiarthritis, antioxidant,

and anticancer properties. They are also good for eye health and contain an active polysaccharide compound called beta-glucan (Maryana, 2020).



**Gambar 3. Pelatihan pembuatan pangan dari olahan jamur**

The next activity was the dissemination of information and technology transfer on business management, group management, group administration, and financial record-keeping. This activity was conducted on November 2, 2024, and was attended by the Rumah Desa Sehat (RDS) partners, mentoring team, implementation team, students, and village officials. The activity took place at one of the RDS members' homes. The session focused more on discussions and the provision of modules on business management, group management, financial record-keeping, and business networking. The goal of this activity was to improve the partners' skills in financial record-keeping, product marketing (both offline and online), and administration. To assess the RDS cadres' understanding of the management material, a pre-test and post-test were conducted. Below are the results of the knowledge assessment of RDS cadres regarding business management, group management, administration, and financial record-keeping.

**Table 1. Knowledge of RDS Cadres Regarding Business Management, Group Management, Administration, and Finance**

Level of Knowledge	Pretest	Posttest
High	0 (0 %)	8 (38%)
Moderate	8 (38%)	7 (33%)
Low	13 (62%)	6 (29%)

Based on Table 2, it shows an improvement in the knowledge of RDS cadres regarding business management, finance, group management, and administration. This aligns with research stating that the success of an organization can be measured by its administration. Administrative books are useful tools for conveying information, control, documentation, monitoring, evaluation, and accountability. Each part has its own tasks and responsibilities. Proper administration can serve as evidence to control whether the tasks carried out by each administrator are running smoothly. The more complete the administrative books are, with good record-keeping, the more it will increase the trust of group members in the performance of the management. This can also serve as a means for internal control of activities. Financial record-keeping within a group is necessary to account for the group's finances to its members. According to Indriyani, Thaap & Adriadi (2019), finance refers to the processing of financing aspects and financial accountability (Wulandari et al., 2023).



**Figure 4. Training on Business Management, Group Management, Administration, and Finance for RDS Cadres**

The next activity conducted was the provision of equipment and materials for the wet cake business and equipment for the dry cake business, along with the dissemination of technology transfer for the production of wet and dry cakes. As a result of this activity, 10 business groups were formed, including: nastar cookies, rose cookies, snow princess cookies, peanut bread, mango sago drink, cappuccino cincau, brownies, rainbow layer cake, moss pudding, and potato donuts. This activity aimed at improving the skills and abilities of 30 extreme poor households with stunting in the field of wet and dry cakes.



**Figure 5. Delivery of Equipment and Production Materials for the Dry and Wet Cake Business**

## **CONCLUSION**

The issues of stunting and poverty still persist in society, especially in disaster-prone areas or remote regions. Strategic solutions to address these problems require cooperation from various parties, including the government, village authorities, and academics who bridge the needs of the community with government policies. One form of collaboration that can be implemented is the social collaboration activity to build communities (kosabangsa). This kosabangsa activity offers many benefits for both the community and academic parties. The benefits for the community include an increase in knowledge, skills, and behaviors to utilize natural resources and human resources to improve living standards. Community service through kosabangsa can motivate individuals to enhance their knowledge, practice, and strive to develop mushroom processing businesses and other ventures to improve the community's economy. In this way, the issue of stunting can be gradually addressed. Additionally, there is a need for an extension of time so that the results from training and technology transfer applied in the community can become more visible. This is because changing community behavior toward better and more advanced practices requires strengthening, mentoring, and more time.



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