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Situation Analysis of Small-scale Mushroom Enterprises of Meghalaya in the Wake of COVID-19 Pandemic

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ABSTRACT

As a remunerative agri-business, mushroom farming is growing as an alternative source of income for the rural population. Meghalaya has climate highly suitable for mushroom cultivation and thus the Government of Meghalaya has taken up various interventions to popularize mushroom cultivation. The study was taken up in the East Khasi Hills and Ri-Bhoi districts of the state during 2020-2022 to analyse the situation of the mushroom enterprises in the wake of the COVID-19 pandemic, which impacted people and businesses all throughout the world. SWOT analysis and TOWS matrix were used for analysing the internal and external factors. The perceptions of 60 growers towards selected SWOT items were recorded. Important strength item was “climatic condition is congenial for mushroom” and the weaknesses was “restriction as well complexity in the mobility of the goods and persons”. For opportunities, “generates employment opportunities” had the highest score and for threats, “Unavailability of spawn” had the highest score. The study suggests establishment of mushroom based FPOs for ease of access to inputs and market for small-scale producers, the development of local spawn entrepreneurs for the accessible and timely supply of quality spawn and the creation of ICT based platform for reaching out to various backward and forward actors.

INTRODUCTION

Mushroom cultivation is being vouched as a profitable agri-business which can be started with low investment and less space. In India with increasing unemployment, self-employment through mushroom cultivation is one important way to increase employment (Raman et al., 2018). Mushroom cultivation is considered as an alternative source of income for uplifting the living standards of rural households and to add good-quality protein in their diets (Kumar et al., 2017). Mushroom is also a rich source of protein and a good alternative for non-vegetarian protein especially for India where 23-37 per cent of the population are estimated to be vegetarian (Biswas, 2018). Mushroom production in India increased from 17,100 metric tonnes in 2013 to 2,58,810 metric tonnes in 2021 (NHB, 2021). Yet India produces only about 2 per cent of the world’s mushroom production, while China accounts for about 75 per cent of global production (Gupta & Morris, 2022).

Meghalaya state of North-East India is a storehouse of many types of edible mushrooms found in abundance across the forested areas of the state and presents a significant chance to multiply the production of mushrooms because of its diverse agro-climatic conditions and plentiful agricultural waste. The Department of Agriculture, Government of Meghalaya (GoM) is involved in capacity building and entrepreneurship development of mushroom farmers as a part of its 5 years long “Meghalaya Mushroom Mission” launched in 2019. Oyster and white button mushrooms is the most widely cultivated mushroom in Meghalaya. The area under mushroom cultivation in the state during 2019-20 was

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estimated to be 3.18 ha with a total production of 41.25 metric tonnes (GoM, 2021). Recently, the GoM has started initiatives to popularize shitake mushroom as well. Directorate of Marketing and Inspection (DMI) provides technical support.

In the wake of the COVID-19 pandemic, which has impacted people all throughout the world, the mushroom growers of Meghalaya are not singled out. The consequences of the pandemic on their enterprises, however big or small, can be negative as well as positive. While the pandemic has prompted people to look more into the consumption of mushroom because of their immunity-boosting and anti-viral properties, the production and marketing activities of the growers may have been affected due to various restrictions imposed due to the lockdown. In this scenario, understanding and evaluating the internal and external conditions that affect the mushroom enterprises is imperative. Thus the study was initiated with the objective of carrying out situation analysis of small scale mushroom growers with special reference to the context of COVID-19 pandemic. Situational analysis helps to identify the current positive and negative factors affecting an organization, service or product. This in turn helps devise strategies to move forward from the existing situation to the desired situation (Kumar & Nain, 2013; Athuraliya, 2021).

METHODOLOGY

The study was conducted in East Khasi Hills and Ri-Bhoi districts of Meghalaya which has the highest area and production of mushrooms in the state. Primary data was gathered through structured interview schedule. 30 mushroom growers were sampled from each district using snowball sampling technique as the growers were scattered throughout the districts. The respondents were sampled from five village of East Khasi Hills and six villages of Ri-Bhoi with the criteria that the maximum respondent of one village will be 10. The method employed for situation analysis was SWOT analysis and TOWS matrix.

According to Forsey (2021), SWOT analysis is a strategic planning technique which puts business in perspective using the perspectives of Strengths, Weaknesses, Opportunities, and Threats. It studies internal strength and weaknesses; and also the external opportunities and threats that affect the performance of an organization. A list of strengths, weaknesses, opportunities and threats were prepared through pilot survey, consultation with experts and review of literature. The identified SWOT statement were send to experts to rate the statements on a four-point continuum as much relevant, relevant, somewhat relevant and not relevant with a score of 4, 3, 2, and 1, respectively. The statements were sent to 21 judges. Out of 21 judges, 10 responded and their responses were used to calculate the item-level content validity index (I-CVI) and to determine if an item needs to be revised or deleted. A criterion of more than or equal to 0.80 of I-CVI (Polit et al., 2007) was set as benchmark for inclusion of an item in the final list. The final SWOT items (also referred to as factors) were administered to the selected respondents were they were asked to rate the items in a three point continuum of 1, 2 and 3 which stand for “does not agree”, “agree” and “strongly agree” respectively.

To analyse the SWOT items internal factor evaluation matrix (IFEM) and external factor evaluation matrix (EFEM) was used. The identified internal factors (strengths and weaknesses) and external factors (opportunities and threats) were tabulated separately. The 10 judges of the content validation were asked to rate the factors on a scale of 1-4 based on the significance of the factor in the context of the study. Based on the significance score, the weight of each of the internal items was calculated in such a way that the total weight of all the internal items sums up to 1. The mean score of the each internal item as assigned by the final respondents was multiplied by the corresponding weight to get the Weighted Score (WS) of each item. The total weighted score (TWS) of IFEM was calculated by adding up each factor’s weighted score. The mean was calculated by taking the mean of the lowest mean score and highest mean score. If the TWS is less than the mean, it indicates weaknesses eclipse the strength and vice versa (Monavari et al., 2007; Pazouki et al., 2017). The same steps were followed for EFEM to calculate the TWS.

TOWS matrix developed by Weihrich (1982) brings out four categories of conceptually unique strategies viz. Strength-Opportunity (SO), Strength-Threats (ST), Weaknesses-Opportunities (WO), and Weaknesses-Threats (WT) (Ravanavar & Charantimath, 2012). SO strategies are suggested to use certain techniques to seize opportunities that fit with one’s strengths, WO tactics to take advantage of opportunities by reducing weaknesses; Using internal strengths as a foundation, ST strategies lessen sensitivity to external threats, and WT techniques diminish both weaknesses and threats.

RESULTS AND DISCUSSION

Internal factor evaluation matrix (IFEM)

There were five strength factors with the WS of 0.21 to 0.12. Among strengths, the items with high weights were, “climatic condition congenial for mushroom cultivation” (0.21) and “cultivation can be done in any available space with minimum inputs” (0.19) while factor with lowest weight was “usage of mobile phone” (0.12). In case of weaknesses, there are eight items with WS range of 0.21 to 0.10. The factors with highest weighted were “restriction as well complexity in mobility of the goods and person” (0.21) while “Mushroom business ecosystem is not well established” (0.12) had a lowest weight. The mean of the lowest mean score value (1.35) and highest mean score value (2.63) was 1.99. And since the TWS of the internal factors (2.02) was higher than the mean (1.99), it can be inferred that strengths has more weight than the weaknesses.

In external factor evaluation matrix (EFEM), there are six opportunities items with the WS of 0.34 to 0.11. In opportunities the items with higher weights were “mushroom enterprise generates more employment opportunities” (0.34), “increase in nutrition-consciousness of people leading to increased demand” (0.32), while “Opportunity to participate in skill and entrepreneurial development programmes on processing and value addition organized by various governmental and non-governmental organisations” (0.11) had the lowest weight. In case of threats, there were three items with a WS range of 0.31 to 0.21 The factors having highest weights were “unavailability of spawn” (0.31), “lack of proper regulations in the local market” (0.24), ‘the items

Table 1. Internal Factor Evaluation Matrix (IFEM)

S.No.	Factors	Weight	Mean score	Weighted score
S	Strengths			
1	Climatic condition congenial for mushroom cultivation	0.08	2.63	0.21
2	Usage of Mobile Phone	0.07	1.77	0.12
3	Availability of family labour	0.08	2.02	0.16
4	Cultivation can be done in any available space with minimum inputs	0.08	2.38	0.19
5	Commercialization with home delivery during the pandemic	0.08	1.47	0.12
W	Weaknesses			
1	Restriction as well complexity in mobility of the goods and persons.	0.08	2.63	0.21
2	Closure of traditional offline market and businesses-like restaurants, eateries, tourism etc.	0.08	2.47	0.20
3	Lack of advisory and support services in technical matters and package of practices.	0.07	1.83	0.13
4	No experience/ guidance in agri-business management within the enterprise	0.07	1.77	0.12
5	Short post-harvest shelf life/perishable nature of the mushroom	0.08	2.52	0.20
6	Lack of knowledge and skill for post-harvest handling and value addition	0.08	1.70	0.13
7	Lack of infrastructure for post-harvest storage, handling and value addition	0.08	1.65	0.13
8	Mushroom business ecosystem is not well established	0.07	1.35	0.10
	Total	1.00	-	2.02

Table 2. External Factor Evaluation Matrix (EFEM)

S.No.	Factors	Weight	Mean score	Weighted score
O	Opportunities			
1	Trade digitalization	0.11	1.73	0.18
2	Mushroom enterprise generates more employment opportunities	0.12	2.78	0.34
3	Availability of online marketing platform and social media	0.11	1.23	0.13
4	Increase in nutrition-consciousness of people leading to increased demand	0.12	2.73	0.32
5	Availability of schemes from state or central government as subsidy/loan/ grant for agripreneurs and/or mushroom cultivation	0.12	1.52	0.18
6	Opportunity to participate in skill and entrepreneurial development programmes on processing and value addition organized by various governmental and non-governmental organisations	0.11	1.02	0.11
T	Threats			
1	Frequent disease and insect pest attack	0.10	2.12	0.21
2	Unavailability of spawn	0.12	2.70	0.31
3	Lack of proper regulations in the local market	0.10	2.30	0.24
	Total	1.00	-	2.04

having the lowest weight was “frequent disease and insect pest attack” (0.21). The mean of the lowest mean score value (1.02) and highest mean score value (2.78) was 1.90. The TWS of external factor (2.04) was higher than the mean (1.90) indicating that opportunities overweight the threats.

For both internal and external factors, the TWS were greater than the calculated mean. Therefore the situation of the selected districts is conducive for success of mushroom enterprises. Similar results were also obtained by Datta and Das (2019). The study reported similar strengths item such as “all year round production of mushroom & climatic suitability” and weaknesses like “highly perishable nature & absence of modern technology to extend shelf-life”. The opportunities “availability of training programmes from different government” and “availability of subsidy” were also highlighted. Rathore et al. (2018) reported lack of spawn production unit at the village level as one of the technical constraints in mushroom cultivation. Kumar et al., (2018) had reported “lack of proper marketing support” and “unavailability of quality spawn” as the major constraints in adoption of mushroom. Tamang & Chhetri (2022) also identified strength such as “to create employment to people” and for threats “disease and pest attack that may effect on product quality and supply” and “limited supply of spawn”. However, the threats items “climatic condition of hilly region” had a contrasting finding as this item was the strength for mushroom growers in Meghalaya. Shirur & Chandregowda (2017) had similar finding for opportunities i.e., increasing awareness among people leading to increasing demand for mushrooms in the market”. Citraresmi et al., (2021) also reported for opportunities, “optimizing the online market” and threat was “competitor from other food sources”.

According to the outcome of the SWOT analysis, the TOWS matrix strategies were formulated and are presented in Table 3.

S-O Strategies: The farmer can realize more potential more if proper utilization of mobile is employed to connect and reach out to various stakeholders so that they can be made aware of the various schemes available to them and also to involve them more

Table 3. TOWS matrix of small scale mushroom enterprises

S-O strategies	***S-T strategy***
SO1: Utilizing of mobile phone and associated technologies to reach out to various stakeholders, related to schemes and other capacity development programmes (S2, O5, O6). **SO2**: Capacity building on accessing social media and other marketing platforms for connecting with input suppliers and buyers (S2, O3).**SO3**: Employment generation through home delivery services (S5, O2).	**ST1**: Creation of ICT based platform for timely push and pull advisory from experts on diseases and pest (S2, T1,). **ST2**: Due to the favourable climate for mushroom farming, facilitation for development of local spawn entrepreneurs for accessible and timely supply of quality spawn could enhance the production of mushroom in the state (S1, T2).
W-O strategy	***W-T strategies***
WO1: Since mushrooms are a perishable product, developing an efficient forward linkage system by developing cold-storage, transportation and processing facilities unit will help the farmers obtain higher returns and generate employment (W5, W7, O2). **WO2**: More online awareness on to participate in skill and entrepreneurial development programme on production and value addition of mushroom (W5, O3).	**WT1**: Establishment of mushroom based cooperatives / FPOs for ease of access to inputs and market for small-scale producers (W8, T3). **WT2**: Creation of linkages with restaurants, private companies which will provide steady market of the produce (W2, T3).

in capacity building. And the farmers can realize their higher returns if they are made proficient in social media as they can utilize social media for marketing of their produce. The use of social media for SMEs facilitates business development, increases product sales, eases communication with consumers, and develops and expands market networks was also suggested by Filipov (2021) & Citraresmi et al., (2021).

W-O Strategy: Since the mushroom production are perishable in nature, developing an efficient forward linkages system will make the farmers earn higher returns provided by developing cold storage, transportation and also processing facilities. Giving them awareness to participate in production and value addition of mushrooms may also help.

S-T Strategy: The unavailabity of spawn hinder the farmer to continue their production, therefore facilitation for development of local spawn entrepreneurs for accessible and timely supply of spawn could enhance the production of mushroom in the state. Shirur & Chandregowda (2017) also suggested purchase of spawn from the local market. Datta & Das (2019) also emphasized development of Spawn Research Centre to ensure cheap supply of quality spawns.

W-T Strategy: Mushroom business ecosystem is well developed in the study area, therefore establishment of mushroom-based cooperatives/FPOs for ease to inputs and market and creation with linkages with restaurants, private companies will provide steady market the small scale producers. Datta and Das (2019) suggested the creation of Mushroom Marketing Organization (MMO) to foster marketing linkage. Citraresmi et al., (2021) recommended that to increase sales volume business cooperation should be established with resellers, retailers and gift shops. It will be easier for companies to establish business partnerships with various parties such as suppliers, distributors, and consumers (Kaleka & Morgan, 2017).

CONCLUSION

Mushroom cultivation if promoted well in the rural areas will achieve multiple benefits like livelihood and nutritional security, socio-economic development and employment generation among rural people. The current study gave an in-depth look into the situation of small mushroom producers of Meghalaya during and after the COVID-19 pandemic, stressing on identified internal and external factors to develop effective strategies. Strong influencing factors, such as the state's favourable climate for mushroom farming and the rise in nutritional awareness among consumers, which has raised demand, need to be harnessed. In addition, the unavailability of spawn and improper regulation in the local markets are issues that need to be addressed. The suggested strategies of the study will be helpful in developing a strong mushroom ecosystem which can help the small scale mushroom enterprises reap huge benefits.

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