Study of risk factors of the operation of food processing community enterprises in* Bangkok Metropolitan Region

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Abstract

It is important that a group or business organization studies risk factor in order to avoid a failure of an operation. Risk factor was one of the risk management key steps. The study of operational failure was to assess and determine risk level whether it was high or low. In case of the high risk, it is necessary to reduce or possibly eliminate the risk. The objectives of this research were to study the risk factors in the operation of food processing community enterprises and assess the risk level. Sample group was 142 food processing community enterprises. Data collection was conducted by interviewing. Analysis of data was done by using the average opinion on the risk factor together with the Risk Assessment Matrix.

The results of the research showed that the operation of community enterprises comprised of 4 aspects: group and member administration, production, marketing and finance. The top high risks were: change of consumers' behavior, no strong leader and natural disasters. In order to improve the operation of its group, it is important to find a way to effectively manage these high risks.

Keyword: Risk Factor, Community Enterprise, Food Processing

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Introduction

Based on the National Economic and Social Development Plan which aimed to create a strong community, bring more income to a community and stimulate a local economy, the government passed the Act in 2005 for "community enterprises". Community enterprises have effectively promoted the fundamental local economy for the past 10 years. Some community enterprises were successful which would help strengthen community development. In the contrary, some community enterprises faced with difficulties resulting in business discontinuance. The operation of both community enterprise and business organization is similar which aimed to find a way to effectively manage a group as well as reduce risk affecting its operation. It is important that businesses must be able to assess and identify factors or limitations that would cause an unsuccessful business operation of a group (Zeng and Skibniewski, 2013; Wu, Olson, and Dolgui, 2015).

The recent business competition is very aggressive. Businesses with high capitals have more potential to run business smoothly and effectively. On the contrary, small businesses such as community enterprises, small and medium enterprises (SMEs) or small businesses with low capitals are severely affected by this fierce competition which could result in being out of business or going bankrupt (Doung, 2009). This is in line with the report by the Community Enterprise Promotion Division (2011) that a number of community enterprises have been decreasing. In 2008, there were 85,620 community enterprises compared to 73,828 community enterprises in 2011. Focusing on food processing community enterprises, there were 17,013 community enterprises in 2008 compared to 8,353 community enterprises in 2011.

Risk assessment aims to identify a situation where risk tends to impact on a business operation. Result of risk assessment would represent how an organization should pay its attention to the situation. Risk could come from both internal and external factors of administration including group and member administration, production, marketing and finance which could damage a business operation (Sumetheeprasit, Pipitnowrat, and Khongsawatkheat, 2013).

As a result, it is important to assess risks in administration including group and member, production, marketing, and finance to reduce loss of small community enterprises (Gupta, 2011). This research aims to study the risks in the operation of food processing community enterprises in Bangkok metropolitan region as well as assess the risks. The results would be used as a guideline to help entrepreneurs or related government offices reduce or avoid risk which could damage their business operation.

Review of the Literature

Community enterprise

Community enterprise is a form of, at least, 7 people in the community aiming to innovatively manage community resources for self-reliance, family and community sufficiency. The practice of community enterprises is involved in producing goods and services from available resources, knowledge, and local intelligence (The Secretariat Office of Community Enterprise Promotion Board, 2005; Phongphit and Janhong, 2005). According to the record from the Department of Agricultural Extension, community enterprises were categorized to 3 groups: product, service and farmer group. Product has 18 sub-groups including plant, livestock, food processing, textile/clothing, basketry, fishery, herb, artificial flower, beverage, souvenir, wood/furniture, metal, jewelry, pottery, leather, machinery and others. Service community enterprises have 6 sub-groups including community saving, community shop, health, travelling, repair of machinery and others. Farmer group has 4 sub-groups including farmer, community cooperative, farmer's housewife and young farmer (The Secretariat Office of Community Enterprise Promotion Board, 2005).

Risk

Risk is an unintended event that brings damage to an operation of any unit or organization which creates a negative impact and loss to a business operation (Sumetheeprasit, Pipitnowrat, and Khongsawatkheat, 2013). There are 2 factors of risk: external and internal. External risk factors include a change in consumers' attitude and behavior; competition with similar products in the market; rules and regulations; rapid technology development; related policies from government agencies; economical and financial crisis; and natural disasters (Leopoulos, Kirytopoulos, and Malandrakis, 2006; Wawire & Nafukho, 2010; Yiannaki, 2012). Internal factors include a weak leader; lack of cash flows; lack of product development; and no clear operational targets (Kupi *et al*, 2009; Stam, 2009).

Risk assessment

Risk assessment is a measurement of risk degree in order to identify the risk intensity that affects the organization's operation. The risk assessment is considered based on the 2 key indicators: risk likelihood and impact (Sumetheeprasit, Pipitnowrat, and Khongsawatkheat, 2013)

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1. Risk likelihood is a degree which an event can reasonably be expected to occur based on the previous data. In case it has never occurred, the available data from a similar event in other groups could be considered. Frequency is used to determine a level of risk likelihood. The scale of risk likelihood is as follows:

Level 1 = very rare – an event rarely happening or once in a few years

Level 2 = rare – an event seldom happening or once in 1 or 2 years

Level 3 = possible – an event happening once in 6 months to one year

Level 4 = likely – an event happening from time to time or once in 3 to 6 months

Level 5 = almost certain – an event regularly happening

2. Risk impact is damage that affects interest parties. The risk impact would have both monetary and non-monetary value such as financial and safety impact, organization's reputation, impact on customers, achievement and human resources. The scale of risk impact is as follows:

Level 1 = insignificant – very low impact or no impact

Level 2 = minor – low impact or less damage

Level 3 = moderate – medium impact

Level 4 = major – high impact

Level 5 = severe or catastrophic – very high impact with possible fatality and the operation temporarily ceased

Risk assessment is to find a level of risk in order to determine an importance of the risk obtained from the calculation of risk likelihood and impact. Here is the formula:

Risk = level of risk likelihood x risk impact.

Risk Assessment Matrix

There are many different ways to manage risks depending on organization's decision. One of the popular ways is to create the Risk Assessment Matrix showing a level of risk likelihood and degree of risk impact on the entire operation. The Risk Assessment Matrix is divided into 3-4-5 parts or depending on the organization or unit. In the table, high risks start from right to left and down to up of the table. Very high risks and high risks are required more attention. It is suggested that they should be improved. In addition, a measure to reduce them should be prepared (Chittoor, 2013; Suwannasarn, 2009; Khangwoon, 2014). The level of risk is shown in the Table 1.

Research Methodology

1. Sample group

A sample group of this research was 220 food processing community enterprises in the Bangkok metropolitan region which included Bangkok, Nonthaburi, Patumthani, Nakornpatom, Samutprakarn and Samutsongkram (The Secretariat Office of Community Enterprise Board, 2012). The sample group was calculated using the Yamane Formula (Niyamangkoon, 2013). The result was equivalent to 142 community enterprises. Simple Random Sampling was selected by drawing the name of community enterprises from a list of active community enterprises in 2013.

2. Measurement of the research

A structured interview using closed and open-ended questions was administered to a sample group. Validity of the interview was tested by 3 experts. Reliability was tested by a try-out within 30 community enterprises which were not a sample group using the Cronbach's Aalpha Method. The results showed that the risk likelihood was at 0.83 and risk impact was at 0.91.

Table 1: Level of Risk

Level of Risk		Likelihood				
		very rare (1)	Rare (2)	Possible (3)	Likely (4)	almost certain (5)
Impact	Severe (5)					
	Major (4)					
	Moderate (3)					
	Minor (2)					
	Insignificant (1)					

Notes: Very rare, Rare, Possible, Likely, Almost certain

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3. Data collection

Primary data was collected from interviewing group leaders or members of each food processing community enterprise. A group representative who was a main person in managing community enterprises was selected or proposed by the group members. Secondary data was obtained by a study of some related researches in the administration of community enterprises and risk likelihood and impact.

4. Analysis of data

The analysis of data was assessed by the level of risk which is the result of the multiplication of risk likelihood by risk impact. The score scale is below Khangwoon (2014):

Range of risk	Level of risk
20.00 - 25.00	Extreme Risk
10.00 - 19.99	High Risk
5.00 - 9.99	Medium Risk
3.00 - 4.99	Low Risk
1.00 - 2.99	Very Low Risk

Results

The 4 risk aspects: group and member administration, production, marketing and finance in the operation of food processing community enterprises in Bangkok metropolitan and region.

1. The average opinion of the group leader or members saw that the group and member administration aspect of food processing community enterprises was medium risk ($\overline{X}$ =6.83). Considering by items, the first 3 highest ranked risks were: 1. Lack of a strong leader ($\overline{X}$ = 10.36); 2. Lack of sufficient information for decision markings ($\overline{X}$ = 8.58); and 3. Government regulations causing some operational difficulties for community enterprises ($\overline{X}$ =7.81). See Table 2.

Table 2: The risk factor assessment of the group and member administration aspect

No.	Risk factors of group and member administration	Risk likelihood	Risk impact	Score of risk	Level of risk
O1	Change of community enterprise administration concept	2.47	2.57	6.35	Medium
O2	Discontinuation of government's support to community enterprises	2.53	2.60	6.58	Medium
O3	No clear business direction	2.82	2.76	7.78	Medium
O4	No clear operational practices	2.38	2.53	6.02	Medium
O5	No meeting to update the information to members.	2.32	2.32	5.38	Medium
O6	No cross checking process on how group committees perform	3.22	2.40	7.73	Medium
O7	Lack of sufficient information for decision makings	2.89	2.97	8.58	Medium
O8	No strong group leader	3.29	3.15	10.36	High
O9	No specific responsible persons	2.38	2.48	5.90	Medium
O10	No cooperation of community enterprise members	2.73	2.67	7.29	Medium
O11	No knowledge and skills of community enterprise members	2.50	2.51	6.28	Medium
O12	No benefits offered to members	2.42	2.41	5.83	Medium

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Table 2: (Continuous)

No.	Risk factors of group and member administration	Risk likelihood	Risk impact	Score of risk	Level of risk
O13	No income apportionment to group members	2.24	2.42	5.42	Medium
O14	No profit apportionment to group members	2.38	2.38	5.66	Medium
O15	Government regulations causing operational difficulties	2.83	2.76	7.81	Medium
O16	Lack of support from government officers	2.56	2.47	6.32	Medium
Average risk score of the group and member administration aspect				6.83	Medium

2. The average opinion of the group leader or members saw that the production aspect of food processing community enterprises was medium risk ($\overline{X}$ =6.29). Considering by items, the first 3 highest ranked risks were: no. 1. No searches for new knowledge ($\overline{X}$ = 7.87); no. 2. No stocks ($\overline{X}$ = 7.81); and 3. Increasing raw materials prices ($\overline{X}$ =7.70). See Table 3.

Table 3: The risk factor assessment of the production aspect

No.	Risk factors in production	Risk likelihood	Risk impact	Score of risk	Level of risk
P1	Increasing raw material prices	2.71	2.84	7.70	Medium
P2	No production plans	2.81	1.99	5.59	Medium
P3	Not following the production plans	2.89	2.08	6.01	Medium
P3	Not following the production plans	2.89	2.08	6.01	Medium
P4	No clear job allocation	2.74	2.04	5.59	Medium
P5	Unstable production processes	2.59	1.91	4.95	Medium
P6	No searches for new knowledge	2.78	2.83	7.87	Medium
P7	No catch up with new technology	2.61	2.62	6.84	Medium
P8	No gathering of local knowledge	2.49	2.53	6.30	Medium

No.	Risk factors in production	Risk likelihood	Risk impact	Score of risk	Level of risk
P9	No exchange of local knowledge	2.35	2.56	6.02	Medium
P10	No continuation of local knowledge	2.37	2.41	5.71	Medium

Table 3: (Continuous)

No.	Risk factors in production	Risk likelihood	Risk impact	Score of risk	Level of risk
P11	Lack of raw materials	2.80	1.91	5.35	Medium
P12	Lack of equipment and machinery	2.66	1.99	5.29	Medium
P13	No stocks	2.77	2.82	7.81	Medium
P14	No production standards	2.53	2.75	6.96	Medium
Average risk score of the production aspect				6.92	Medium

3. The average opinion of the group leader or members saw that the marketing aspect of food processing community enterprises was medium risk ($\overline{X}$ =7.12). Considering by items, the first 3 highest ranked risks were: 1. Change in consumers' behavior ($\overline{X}$ = 7.87); 2. Natural disasters ($\overline{X}$ = 10.16); and 3. Increasing competitors ($\overline{X}$ =9.92). See Table 4.

Table 4: The risk factor assessment of the marketing aspect

No.	Risk factors in marketing	Risk likelihood	Risk impact	Score of risk	Level of risk
M1	Increasing competitors	3.09	3.21	9.92	Medium
M2	Increase of consumers' daily living expenses	2.46	2.60	6.40	Medium
M3	No new products	2.67	2.63	7.02	Medium
M4	Group products not regularly available in the market	2.79	2.80	7.81	Medium
M5	No knowledge of customers' needs	2.35	2.44	5.73	Medium

M6	No knowledge of approaching customers	2.27	2.53	5.74	Medium
M7	No pricing method	2.28	2.39	5.45	Medium
M8	No new products	2.89	2.99	8.64	Medium
M9	No brand	2.39	2.57	6.14	Medium
M10	No marketing planning	2.39	2.57	6.14	Medium
M11	No identification of target customers	2.41	2.51	6.05	Medium
M12	No knowledge of competitors	2.37	2.45	5.81	Medium
M13	No shops to sell their products	2.85	2.74	7.81	Medium
M14	Political crisis	2.38	2.40	5.71	Medium

Table 4: (Continuous)

No.	Risk factors in marketing	Risk likelihood	Risk impact	Score of risk	Level of risk
M15	Economic crisis	2.36	2.38	5.62	Medium
M16	No clear government policies	2.32	2.25	5.22	Medium
M17	Change in consumers' behavior	3.11	3.35	10.42	High
M18	Natural disasters	3.08	3.30	10.16	High
M19	Increasing oil prices	2.87	3.04	8.72	Medium
M20	Terrorism	2.63	2.69	7.07	Medium
M21	Lack of cash flows	2.77	2.88	7.98	Medium
Average risk score of the marketing aspect				7.12	Medium

4. The average opinion of the group leader or members saw that the financial aspect of food processing community enterprises was medium risk ($\overline{X}$ =6.41). Considering by items, the first 3 highest ranked risks were: 1. No finance person ($\overline{X}$ = 7.29); 2. No financial records ($\overline{X}$ = 6.11); and 3. No reveal of financial information to group members ($\overline{X}$ = 5.84). See Table 5.

Table 5: The risk factor assessment of the financial aspect

No.	Risk factors in finance	Risk likelihood	Risk impact	Score of risk	Level of risk
F1	No finance person	3.17	2.30	7.29	Medium
F2	No financial records	2.95	2.07	6.11	Medium
F3	No reveal of financial information to group members	2.82	2.07	5.84	Medium
Average risk score of the financial aspect				6.41	Medium

Based on the results of the risk assessment in the 4 factors including group and member administration, production, marketing and finance, the codes were added into the Risk Assessment Matrix. There were 34 factors that were medium risk and 20 factors that were high risk. The results are shown in Table 6.

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Table 6: The Risk Assessment Matrix of the operation of food processing community enterprises in Bangkok metropolitan region

Level of risk		Likelihood				
		very rare (1)	Rare (2)	Possible (3)	Likely (4)	almost certain (5)
impact	Severe (5)					
	Major (4)		O15,O16 P1, M8, M19	O8, M17, M18		
	Moderate (3)		O1,O3,O5,O7, O10,O11,O14, P7, P8, P9, P10, P13, P14, M2, M9, M10, M11, M12, M14 M15, M20,M21	M1		
	Minor (2)		P6	O2,O4,O6, O9,O12, O13P2,P3, P4,P5P11, P12,M3, M4,M5, M6, M7 M13,M16, F2,F3	F1	
	Insignificant (1)					

Note: Very Low Risk, Low Risk, Medium Risk, High Risk, Extreme Risk

Discussion

Based on the study of the risk assessment of food processing community enterprises in Bangkok metropolitan region, it revealed that the high risk to which community enterprises should pay more attention and have a plan to respond was the change in consumers' behavior. A change in consumers' behavior possibly caused customers to shift their interests and not buy their products. Having less income due to the economic crisis may result in a lower selling volume for community enterprises' products. New products with less expensive prices could replace the existing ones with higher prices. This is in line with the study by Kotler (1997). It showed that consumers' behavior can be compared to a black box that manufacturers or vendors are unable to predict. Consumers' behavior occurred when both internal and external stimulus such as products, prices, distribution, marketing, economy, technology or culture were received. It is important that business owners, especially small business owners adjust themselves to respond to this rapid change. Otherwise, small businesses would be at risk. Consumers would pay less attention and shift their focus to products that can well respond to their needs (Sheth and Venkatesan, 1968; Taylor, 1974; Manzano, Rivas, and Bonilla, 2012).

Lack of a strong leader is one of the problems that the majority of community enterprises are facing. A leader is a main person to make a decision and give community enterprises a direction. Due to the fact that most leaders of community enterprises have a good networking and know a lot of people in the community well, it is not difficult for them to form an effective working team. It is important that a leader of community enterprises should do some planning in different areas: production, marketing, distribution, pricing, where to sell products, accounting and investment. The study by Maksuwan (2016) revealed that having a strong leader was a reflection of community uniformity. A leader should be capable to motivate community members to work cooperatively to solve problems. Having a strong leader would provide trust and confidence to community members who may be interested in joining a community enterprise to help develop their community.

Natural disasters are an uncontrollable factor. If occurred, products would fail to be produced and delivered to customers on time. Due to a lack of raw materials and increasing prices of raw materials resulting in higher production costs, the operation would be forced to stop. In addition, natural disasters also cause product damaged and lost. There is no shop to sell products and no way to transport products to a market and/or customers. This is line with the study by Ingirige, Joness and Proverbs (2008); Wongnaya and Chaowakeeratiphong (2013);

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Siriaramsakhon and Viratnipawan (2016) that natural disaster is one of the factors that have both direct and indirect effects to the administration of business operation. Direct risk includes a cause of business interruption and/or stop; loss of income; condition of sinking funds; low financial liquidity to invest in a next production cycle. Indirect risk would affect business partners and would cause a cease in their business partner's operation such as raw material, packaging and product selling.

Conclusion

Risk assessment is one of the most important steps to assess risks affecting an operation of one unit or organization. It provides the information for a unit or organization to appropriately deal with risk impact. This research assessed risk factors of the operation of food processing community enterprises in Bangkok metropolitan region. It showed that there were 3 high risks: change of customers' behavior, lack of a strong leader and natural disasters. The 3 high risks are required attention and proper administration to reduce the risks.

Suggestions

1. It is important that community enterprises must adjust themselves to a new technology by selling their products online in order to offer their customers more accessibility to their products. Further, community enterprises should learn more about online marketing to respond to a new available business channel.

2. Election for community enterprise leaders should be encouraged due to the fact that he/she should be accepted by most of group members.

3. Community enterprises must be well-prepared to all natural disasters. It is important to start from production planning i.e. identifying a best period to start production and finding raw materials and determining products that are not easily perishable and have a long shelf life. Marketing planning should also be done to respond to customers' needs such as identifying a best period to sell products with possible low risk of natural disasters. Regularly weather forecast checking should also be done.

4. Community enterprises should work together and create community enterprise networking to increase production capacity, improve and develop their existing products, create a brand and strengthen a uniqueness of their products.

5. Community enterprises should start to do marketing by telling their customers about background of community enterprises, reputation and uniqueness of their products. In

addition, brand or geographical indication should also be considered in order to benefit the marketing promotions in the future.

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