Capturing Wealth from Upstream Human Resources in Ceylon Cinnamon Industry

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Abstract

Ceylon cinnamon is apivotal minor export crop in SriLanka which cognizance from the ancient times. To sustain the dominating position of the cinnamon industry, it is necessary to overcome the barriers of the industry. The most compelling one is the human resource issue due to the labour intensity nature of the cinnamon industry. In this context, this study aims to assess the upstream human resource management of the Ceylon cinnamon value chain. 300 cinnamon processors and growers were selected randomly from Galle, Matara, Rathnapura and Kalutara districts using stratified random sampling technique. Data were collected through interviewer administered pre-tested questionnaires, focus group discussions and personal observations. Data were analysed using descriptive analysis, chi-square analysis, principal component analysis, regression analysis and Garret ranking technique. Results revealed that there was a relationship between socio-economics of cinnamon growers and value chain productivity, while in cinnamon processors there was no relationship between socio-economics and value chain productivity. According to the findings in cinnamon processing, there were two systems known as, Kalli and factory system. Results showed that there was no relationship between the knowledge, knowledge flow, decision-making ability, power and governance and value chain productivity of both cinnamon growers and processors. Lack of skilled cinnamon processors and lack of job security became the prime issue among the cinnamon growers and processors respectively. Recommendations were originated to overcome the identified issues to ameliorate the Sri-Lankan cinnamon industry.

Keywords: Ceylon Cinnamon, Human Resource Management

1. Introduction

True cinnamon or Ceylon cinnamon, a centuries old industry, generated foreign currency to the country while generating employment to thousands. There are approximately 60,000 families who are directly depending on the Cinnamon industry for their day-to-day income (Rupasinghe, 2011).Currently from grower to end customer, the industry is not maintained properly. Due to that Sri-Lanka is gaining low profit(Samarawickrema,2015).To enhance the production and the sales of cinnamon, management of human resources is important. Ceylon cinnamon value chain was directly linked with the human resources (HR)who increase the wealth of the people within the industry. For the cinnamon industry, human resources were the key element for the success of the industry. Industry practices heavily depended on quality of human resources which operationalized the industry practices. This study focuses on identifying the human resource problems associated with the industry especially at the upstream cinnamon value chain members.

Although Sri Lanka has an edge over its product Ceylon Cinnamon or true Cinnamon, the country has failed to adopt proper food safety and quality management systems especially at the upstream. Some of the Cinnamon value chain actors follow poor producing and processing practices. This has resulted in poor quality products and creates a risk of losing international market share and eventually creates challenges to the marketing of Cinnamon competitively at the global context.

In recent years, Cinnamon value chain competitiveness is gaining a huge importance due to the challenges faced by the Cinnamon industry in the global environment. The activities of the value chain actors are interrelated with a cinnamon competitive environment.

Cinnamon industry is highly labour-intensive throughout the whole value chain (Thanthirige, 2011). From growing to exporting, people are an essential component to the industry because the activities of the value chain actors are interrelated with a cinnamon competitive environment. Throughout the Ceylon cinnamon value chain there are many problems that exist in the human resource management area. The major human resource problem lies on cinnamon processing (cinnamon peeling) and plantations.(Samarawickrema,2015).

When it comes to cinnamon processing, cinnamon processors were the root of the cinnamon industry. Without cinnamon peelers it is impossible to obtain a marketable quality product. Peeling is an operation which needs much skill, experience and patience. The peeling of bark from the stems is usually done by hand by skilled peelers. The quality of cinnamon depends on how well the bark is removed from the stem by the cinnamon peeler. Today the lack of skilled cinnamon peelers is the major problem (UNIDO report, 2011).Scarcity of traditional

peelers has led to the standstill of Ceylon cinnamon production. Sri Lanka has an estimated 30,000 peelers to harvest 33,000 hectares of the spice. But 50,000 would be needed to reap the entire crop during its two monsoon seasons. Due to the shortage of peelers, only 35% of the crop is harvested twice a year, while 65% of the crop is harvested once a year(Daily News, 2017).

This peeling process is a highly labour-intensive operation, resulting in labour costs which make up about 60 per cent of the total production cost. Given the lack of approximately 35,000 skilled peelers in the sector, the current contracted cinnamon processors receive between 1/3 up to 1/2 of the value of cinnamon they peel per day (Samarawickrema, 2015). Therefore, the owners have no control over the processors and during some seasons leave without gaining any yield. On the other hand, the knowledge flow of cinnamon peeling is not functioning well. Because most skilled cinnamon peelers don't like to disseminate their knowledge to the future generation and to other people who come from different areas.

In many ways cinnamon growers and processors lack the knowledge they need (modern agronomic practices and high yielding cinnamon varieties to increase production). Most of them have negative attitudes towards the modern concepts and they are reluctant to change (Thanthirige,2011). Also majority of the processors and growers have low level of awareness on quality cinnamon processing and low level of compliance towards quality standards and certifications on cinnamon processing. The value chain actors of the Cinnamon industry concern more quantity based than the quality based achievement.

These issues are very critical for the cinnamon industry. The poor management and lack of concentration on practices affecting the entire industry in the plantation sector has led to performance shortages and other long-term problems. Hence to obtain the proper competitive advantage from the true cinnamon, there must be proper management of the cinnamon value chain.

1.1. Research problem

Sri-Lankan cinnamon is considered as true cinnamon in the world and has a growing demand. The uniqueness and the quality of the Ceylon cinnamon have created franchise over the international market. Historically, Sri Lanka keeps an unparalleled position among countries supplying cinnamon to the world market. From the global market perspective, of the true cinnamon trade, Sri Lanka has been holding a dominating position with a 90% market share (EDB, 2017).Future of the industry depends on the human resource. Human resource management is a critical problem in the cinnamon industry. To improve the cinnamon industry, it is essential to manage human resource properly.

Without proper human resource management, cinnamon industry can't survive in the world market with the competition from cassia. Throughout the Ceylon cinnamon value chain there are many problems exists in the human resource management area. For example, lack of skilled peelers, production of poor quality products, and unnecessary competition of local cinnamon exporters. (HARTI, 2017). Lack of skilled cinnamon peelers is the major problem in the industry.

On the other hand, the knowledge flow of cinnamon peeling is not functioning well. Because most skilled cinnamon peelers don't like to disseminate their knowledge to the future generation and other people come from different areas. These issues are very critical for the cinnamon industry. Future of the cinnamon industry might be in a risk due to these issues. Since the quality of the cinnamon mainly depends on the cinnamon processors and the planters, this study mainly focuses on addressing the human resource management, especially at the upstream value chain actors, cinnamon growers and processors by identifying the issues involved in their current practices and exploring the strategies for the identified problems.

2. Literature Review

2.1. HR and cinnamon value chain

Human resource is the most precious component in any industry which requires human involvement. Human Resource means, the people that staff and operate an organization(William R. T,2003).HRM is "Planning, organizing, directing, controlling of procurement, development, compensation, integration, maintenance and separation of human resources to the end that individual, organizational and social objectives are achieved (Edwin B.F,1979).

Cinnamon is an indigenous plant to Sri-Lanka which is used as minor export crop. True cinnamon is only produced in Sri-Lanka which is considered as prime spice. (Samarawickrema, 2015). Ceylon cinnamon industry has various problems in the human resource management area(HARTI,2017). When considering about the cinnamon processors, major problem is lack of skilled labour (skilled peelers). Processing of cinnamon is very tedious and time-consuming work which requires skilled labour (Thanthirige, 2011). Therefore, human component is essential for the survival of the industry.

However, there is severe labour shortage within the industry. The reason for labour shortage is lack of recognition and social status for the cinnamon processors. Due to that, the younger generation don't like to be involved in the industry (Samarawickrema, 2015). On the other

hand, the skilled cinnamon processors don't like to involve their children in the industry and they don't encourage them. This will cause severe damage to the cinnamon industry. Therefore, human component is essential for the survival of the industry.

3. Method

3.1. Conceptual framework

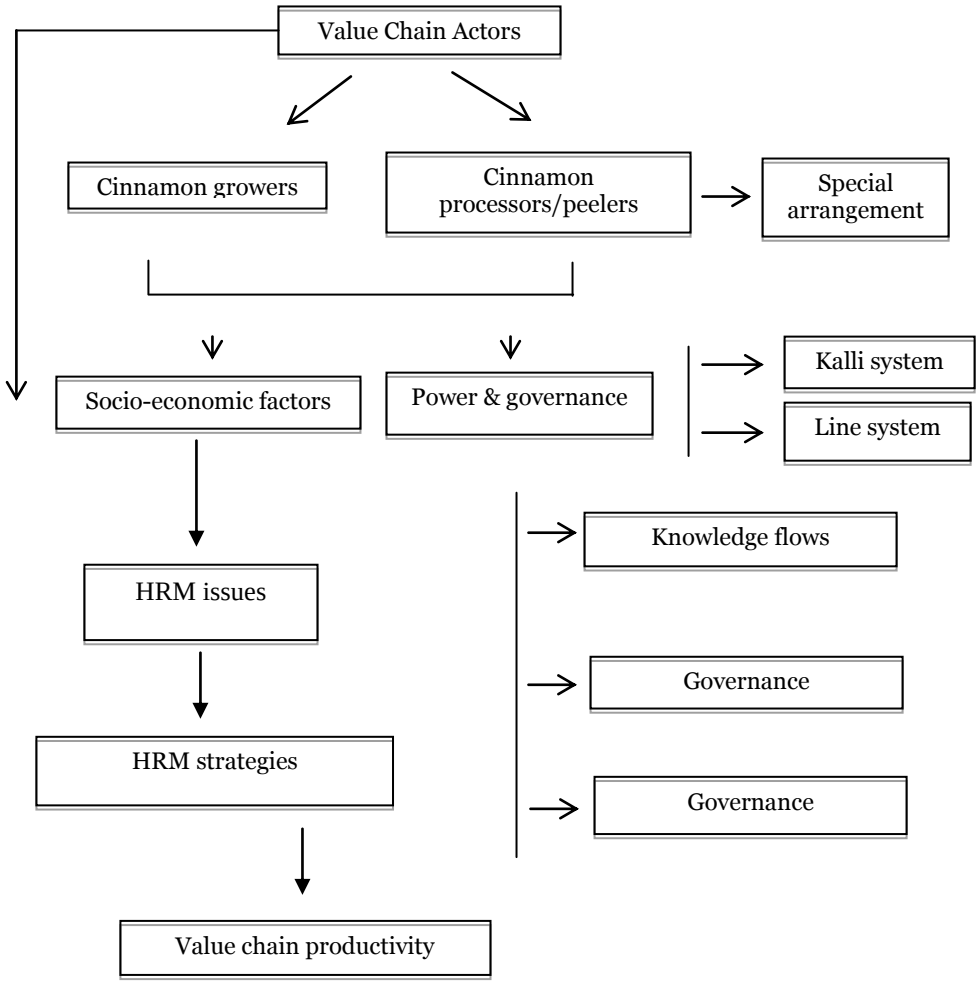

Figure1: Conceptual Framework

The study was based on the broad objective to assess the upstream human resource management of the Ceylon cinnamon value chain. Specific objectives were; to identify the key human resource elements in Ceylon cinnamon value chain; to find out the power and governance of Ceylon cinnamon value chain; to find out the critical issues in upstream human

recourse management and to explore strategies to manage the upstream human recourses in Cinnamon value chain.

This study was deductive and descript-explanatory in nature. Research strategy was the survey strategy. To achieve the objective, field survey was conducted in the cinnamon growing areas in Sri-Lanka. Probability sampling was used as the sampling technique and stratified random sampling method was used as the sampling method. Sampling frame of this study was the upstream value chain members those who are involved in the Cinnamon value chain in the Galle, Matara, Kalutara and Rathnapura districts. Based on the cultivation intensity, information was collected from the Cinnamon value chain actors from the 4 districts. The respondents were categorized mainly into 2 groups, Growers and Peelers. Total sample size was 300.

To obtain primary data, interviewer administered pre- tested questionnaire and focus group discussions were used. Data gathered was statistically analysed to see if the following hypotheses that were generated have been supported to the objectives. Data analysis was done using descriptive analysis, chi-square analysis, principal component analysis, regression analysis and Garret ranking technique. Data analysis was done by using SPSS version 21(SPSS Inco.) and MS Excel (2016).

4. Results and discussion

According to the results of the first objective, cinnamon processors and growers play a major role in the cinnamon industry. In this study dependent variable was cinnamon value chain productivity (Harvest). Independent variables were socio-economic factors such as, education level, experience and income. Pearson correlation matrix was used to test the hypotheses. In cinnamon growers, there was a relationship between the value chain productivity and the experience, education level and the income level.

Table 1: Relationship between the Socio-Economic Factors and Value Chain Productivity- (Growers)

Variable	Correlation coefficient (Spearman's rho)	P- value (Sig-0.05* or Sig-0.01**)	Strength/Direction of correlation	Ho/H1 Accepted/Rejected
Age*Productivity	-0.028	0.769	Negative/Weak	H_0 – Accept/ H_1 - Reject

Gender*Productivity	0.809	0.809	Positive/Strong	H_0 – Accept/ H_1 - Reject
Civil status*Productivity	-0.087	0.288	Negative/ Weak	H_0 – Accept/ H_1 - Reject
Education*Productivity	-0.187	0.022*	Negative/Weak	H_1– Accept/ H_0 - Reject
Expenditure*Productivity	0.024	0.769	Positive/ Weak	H_0 – Accept/ H_1 - Reject
Income*Productivity	0.331	0.000	Positive/Moderate	H_1– Accept/ H_0 - Reject
Experience*Productivity	0.235**	0.004	Positive/ Weak	H_1– Accept/ H_0 - Reject

In cinnamon processors, there was no relationship between the value chain productivity and the socio economics of cinnamon processors (Table 02).

A negative relationship was observed in the education level while other two factors showed a positive relationship (Table 01). When education level increases, more people move out from the industry. This was observed due to high number of small holders in the industry. Regression analysis was conducted taking value chain productivity as dependent variable and education level, income level, experience as independent variables. Table 01 illustrates the findings of regression analysis.

Table 2: Relationship between the Socio-Economic Factors and Value Chain Productivity- (Processors)

Variable	Correlation coefficient (Spearman's rho)	P-value(Sig-0.05* or Sig-0.01**)	Strength/Direction of correlation	Ho/H1 Accepted/Rejected
Age*Productivity	0.055	0.503	Positive/Weak	H_0 – Accept/ H_1 - Reject
Gender*Productivity	0.008	0.921	Positive/ Weak	H_0 – Accept/ H_1 - Reject
Civil status*Productivity	-0.010	0.906	Negative/ Weak	H_0 – Accept/ H_1 - Reject
Education*Productivity	-0.124	0.130	Negative/ Weak	H_0– Accept/ H_1 - Reject

According to the findings of the objective 01, in cinnamon processing, there were two systems. Such as, Kalli system and factory system. In Kalli system there were 4-6 members who work collectively. They divide their work according to their capability. Women's task was mostly scraping and quill making. Men do mainly quill making and all the other tasks. On the other hand, factory system divides one work for one person.

Out of the total sample 63% of the Kalli consist with 3-4 members in their Kalli while 33% consist with 2 members. Generally, husband and wife create this 2-member Kalli. Little

amount (2%) of Kalli's consist with more than 6 members. When considering the payment scheme of the Kalli members, majority (56%) were receiving half payment from the yield. 38% were receiving one third of the yield. Other 6% were receiving another type of payments. Specially, in Galle district the payment scheme was 1/3. In Matara ½ payment scheme was observed.

Figure2:Kalli System and Factory System

Factor analysis and regression analysis were used to identify the knowledge and knowledge flow of cinnamon processors and growers with value chain productivity(Objective 02). Six questions related to knowledge were factor analysed using principal component analysis with Varimax rotation. The analysis yielded two factors explaining a total of 69.266% and 66.21% of the variance for the entire set of variables of processors and growers respectively. (Table 03) KMO and Bartlett's Test of Sphericity both indicate that the set of variables are at least mediocre. Substantively, this means that two clear factors were identified, those were knowledge on grades and knowledge on quality.

To identify the relationship of the knowledge of the processors and growers and productivity, following hypothesis were made and regression analysis was conducted. Results of the regression analysis indicated that there was no significance relationship between the knowledge of both the processors and growers and value chain productivity.

Following hypotheses were generated to identify the relationship between value chain productivity and the dependent variables (knowledge/knowledge flow/power and governance and decision making).

Hypothesis testing

H_0 = Level of knowledge of cinnamon processor /growers has no relationship on value chain productivity

H_o = level of decision making power of cinnamon processor/grower has no relationship on value chain productivity

H_o = level of power and governance of cinnamon processor /grower has no relationship on value chain productivity

H_o = level of decision making of cinnamon processor /grower has no relationship on value chain productivity

Table3: Factor Analysis Table for Knowledge

Statement	Factor 01 - Knowledge on grades		Factor 02 - Knowledge on quality		Communality	
	Processor	Grower	Processor	Grower	Processor	Grower
I have adequate knowledge regarding peeling/processing	.737	.831	-.310	-.236	.639	.746
I'm aware about the grades which are at the market; Alba, C_5 SPL, C_4, M_5, H_1, H_2,	.829	.792	-.401	-.190	.848	.663
I can make any grade required	.817	.761	-.407	-0.184	.834	.716
I'm aware about new methods/technologies/value addition	.442	.846	.612	-.018	.570	.461
I'm aware about the quality standards; cleanliness, hygiene, grade, colour, size,	.543	.445	.669	.513	.743	.725
I'm aware about the sales and marketing of cinnamon; price, demand, market trend	.478	.123	.542	.842	.523	.635
Eigenvalue	2.6171	2.246	.539	1.065		
% of Total Variance	43.621%	44.915 %	25.645%	21.296 %		
Total Variance	69.266%	66.21%				

Three questions relating to knowledge flow were factor analysed using principal component analysis with Varimax rotation. The analysis yielded one factor explaining a total of 87.168 % and 58.729% of the variance for the entire set of variables of processors and growers (Table 04).

To identify the relationship of the knowledge flow of the processors and growers and productivity, regression analysis was conducted. However, Knowledge flow didn't show any relationship with the value chain productivity for both processor and grower.

Table 4: Factor Analysis Table for Knowledge Flow

Statement	Factor 1 Knowledge flow		Communality	
	Processor	grower	Processor	grower
I would like to transfer my knowledge to others	.973	.899	.947	.808
I would like to give my knowledge on behalf of an organization	.973	.919	.947	.845
I would like to give my knowledge if I receive an incentive	.849	.330	.721	.109
Eigenvalue	2.615	1.762		
% of Total Variance	87.168%	58.729%		
Total Variance	87.168%	58.729%		

To identify the relationship between power &governance and value chain productivity, and to identify the relationship between decision making and value chain productivity of both the processors and growers, mean score was used and then followed by regression. However, there is no relationship between the variables(power and governance and productivity and decision making and the value chain productivity.

To identify the critical issues in human resource management Garret ranking technique and Chi-square method were used(Objective03). Issues of the cinnamon growers differ from the issues of the cinnamon processors. The most consequential issue among the cinnamon growers was lack of skilled cinnamon processors. The reason behind this was the less involvement of younger generation to the industry. Further, processors were reluctant to introduce their children into the cinnamon processing profession. Lack of government support and lack of knowledge becomes secondary and tertiary issues respectively. There is an association between lack of skilled processors and value chain productivity in cinnamon growers. On the other hand, lack of job security became the prime issue among the cinnamon processors. Other issues were hardy working conditions and less freedom for other work. There is an association between job security and value chain productivity in cinnamon processors.

Chi-square test: human resource issue and productivity of growers

To identify if there is any association between the human resource issues and the productivity, Chi-square test was used. According to the fourth objective, the identified key issue was measured against the productivity of the cinnamon value chain. There was an association between the productivity and lack of skilled peelers or processors. Pearson Chi-square of the test was 0.013 which is lower than the 0.05.

Graphical distribution of the percentages was given below. There are 61% of respondents who has harvested less than 200kg. They believe that lack of skilled peelers is a more important issue while 19% believe that it is not an important issue. On the other hand, 76% of respondents who has harvested more than 200kg believe that it is the most important issue while other 24% believe that it is not an important issue.

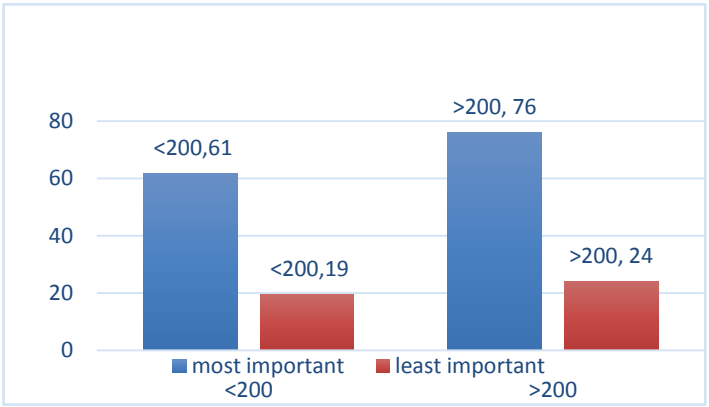

Figure 3: Chi-Square Results in Growers Issues

Chi-square test: human resource issue and productivity of processors

There was an association between the productivity and lack of job security. According to the findings of the study, lack of job security was the most important issue among the processors. (Pearson Chi-square of the test was 0.049 which is lower than the 0.05.) There are various reasons for this. Cinnamon processing is a blue colour job which requires more labour. Also, they were not receiving any Employee Trust Fund (ETF) or Employee Provident Fund (EPF) or pension like government employees. They receive their income until they have their own strength. So, after they age, they have no income source for livelihood. On the other hand, peelers have off work period (usually 6 months) for year because; cinnamon can't process throughout the year. In the flowering and fruiting stages, shoot development stage and

drought periods it is impossible or difficult to peel cinnamon. So, they need to find another work for those 6 months. Therefore, cinnamon processors have no job security.

Graphical distribution of the percentages was given below. There are 13% of respondents who has harvested less than 250kg;they believe that lack of job security is a more important issue while 25% believe that it is not an important issue. On the other hand, 21% of respondents who has harvested more than 250kg; believe that it is the most important issue while other 91% believe that it is not an important issue.

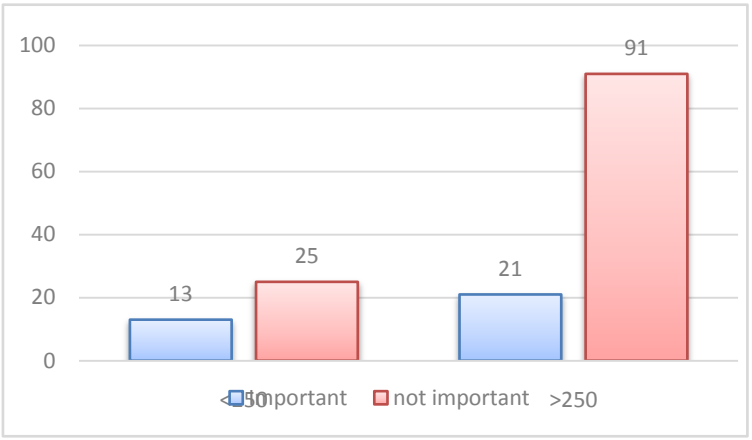

Figure 4: Chi-Square Results in Processors Issue

Throughout the study, suggestions for the problems in the industry were obtained by the respondents. According to those answers these strategies were suggested (Objective 04). Strategies for cinnamon growers are to register all cinnamon peelers and to train them. They should establish long term contract basis agreement with processors. Provide training programs and extension services, crop insurance, promote mix cropping with cinnamon. Government intervention should be present to control the price/certified price for cinnamon. They should provide subsidiaries for plants, fertilizer and peeling house. Provide extension services on pest and disease management and registration of cinnamon growers.

Strategies for cinnamon processors are to establish a pension system/EPF/ETF by their own contribution. Place an income sharing system with growers. Establish strong factory system which consists of working hours from 8 am to 5 pm. Provide training programs and certification (NVQ Level), and extension services on income management. Establish cinnamon processors associations and incentive system to produce higher grades Ex: Alba, Provide subsidiaries for tools.

5. Conclusion

According to the results of the study cinnamon processors and growers play a major role in cinnamon industry. There was a significant relationship between the education, experience, income and the value chain productivity of growers. In cinnamon processors, there was no relationship between the value chain productivity and the socio economics of cinnamon processor. According to the findings of the objective 01, in cinnamon processing, there was two systems, known as the Kalli system and factory system. There was no significant relationship between value chain productivity and knowledge/knowledge flow/decision making/power. There was an association between human resource issues and value chain productivity. Throughout the study, suggestions for the problems in the industry were obtained by the respondents. According to their answers these strategies were suggested.

Issues of the cinnamon growers differ from the issues of the cinnamon processors. The most consequential issue among the cinnamon growers was lack of skilled cinnamon processors while lack of government support and lack of knowledge becomes secondary and tertiary issues respectively. There is an association between lack of skilled processors and value chain productivity in cinnamon growers. On the other hand, lack of job security became the prime issue among the cinnamon processors. Other issues were hardy working conditions and less freedom for other work. The major problem for the cinnamon growers was lack of skilled cinnamon processors. To solve that problem, training and registering the cinnamon processors can be used as a solution. More government intervention to the industry will break the monopoly of the private sector who leads the industry. Establishing a certified price will be an effective method for government to intervene. The major problem of the cinnamon processors is lack of job security. To ensure their well-being at an old age, establishment of EPF/ETF system will be effective. To reduce hardy working conditions, establishment of factory system which consist 8 am to 5 pm working hours will be a better solution

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