ISSN 2815-0104

POLICY COMPENDIUM

OF ECONOMICS, EXTENSION AND AGRICULTURAL SYSTEMS RESEARCH 2021

Edited by
Dr. Kumudu P. P. Kopiyawattage

Published by
Department of Agricultural Systems
Faculty of Agriculture
Rajarata University of Sri Lanka

Policy Compendium of Economics, Extension and Agricultural Systems

2021

Department of Agricultural Systems

Faculty of Agriculture

Rajarata University of Sri Lanka,

Anuradhapura

Policy Compendium of Economics, Extension and Agricultural Systems

Edited by

Dr. (Mrs.) Kumudu P. P. Kopiyawattage

Department of Agricultural Systems

Editorial Assistance

Ms. Oshani de Silva

Ms. Sharala Wijekoon

Department of Agricultural Systems

Cover Page and Design

Mr. Hirantha Madurasinghe

Audio Visual Unit, Department of Agricultural Systems

ISSN: 2815-0104

9 772815 010000

Published by

Faculty of Agriculture

Rajarata University of Sri Lanka

Puliyankulama Anuradhapura

Preface

The agriculture sector of the country is experiencing a massive crisis at the moment in terms of food production and national food security. Decisions taken by the government in terms of government laws, regulations, court decisions, and local ordinances affect all aspects of agriculture including the stakeholders involved in it.

Policy when informed by research tested through empirical evidence, is one of the well accepted methods of formulating policy around the world. Even though, conducting a research project is a mandatory requirement for the fulfillment of many degree programs in the country, many research findings end up pilling up in university libraries without getting the attention of relevant policy makers.

On this backdrop, the Department of Agricultural Systems of the Faculty of Agriculture decided to contribute to the policy formulation process by disseminating research findings of the undergraduate research students. This compendium of policy briefs is the second of the series that the Department will produce. Every year, a group of final year students majoring in Agricultural Economics, Extension and Systems will undertake a research project, on topics that are nationally and timely important to the agriculture sector, under the supervision of senior academic members and experts in the respective fields. All the policy briefs presented in this compendium were presented at the Annual Research Symposium of the Faculty of Agriculture, Rajarata University in 2021.

The twelve policy briefs included in this collection were selected out of twenty research projects conducted in 2021, by the students of Department of Agricultural Systems. The policy briefs included in this collection will provide guidance to policy makers in making important decisions related to agriculture.

Dr. Kumudu P.P.Kopiyawattage – Editor

Content

Impact of Agricultural Policies and Political Economy of Sri Lanka

01

Impact of Agricultural Policies and Political Economy of Sri Lanka

Introduction

Governments usually implement agricultural policies with the goal of achieving a specific outcome in the domestic agricultural product markets. Agricultural policies and practices are critical for building the resilience of agricultural landscapes and agriculture-based livelihoods to social-ecological shocks and stresses. Ultimately agricultural policies are contributed to the agricultural GDP and economic development of the country. Sri Lanka has traditionally been an agro-based economy.

Key Messages

- Despite the policies adopted in different regimes are comparable, emphasis put on different polices are different
- Past policy regimes have not been equally effective in bringing the desired changes
- Each agriculture subsector should draw equal attention in the policy formulation process

There are four different roles to be played by the food and agriculture sector.

This includes

(1) **Food security** - associated with annual per capita production of food (rice and other field crops)

(2) **Labor mobility** – releasing of agricultural labor force to other sectors (manufacturing and services);

(3) **Capital formation** - through domestic savings from this sector, and

(4) **Agricultural trade** - earning of foreign exchange by exporting agricultural products (Tea, Coconut, Rubber)

Sri Lanka's agricultural policies since independence in 1948 have reflected changes on overall development strategy of the country, as well as the interplay of conflicting domestic political considerations. According to Central bank reports, in 1978, the share of agriculture in Sri Lanka's GDP was 30.79% and in 2019, it was 7%.

Sri Lanka's independence in 1948 had a major impact on agriculture. This was strengthened after 1960 by the increasing prices of imported food. The economic policy of the Sri Lankan government adopted after the 1960s was clearly oriented towards import substitution, restrictions on imports, and price support for domestic food crops. The import substitution development strategy came to an end following the radical political change of 1977.

What policy strategies are effective in achieving agricultural growth remains a question. Some agricultural policies might have been more effective and contributed significantly to the development of the agricultural sector while some other policies might have not been that effective.

Therefore, recording the lessons learned about the effectiveness of past policies would provide a reference for future such policies. This policy brief serves that purpose. Particularly, this records the impact of past policy regimes and their contribution to the agricultural sector's development of the country and identifies what are replicable in the future cause.

Table 1: Chronology of policy regimes

Policy Regime	Time Period
Regime one (R-01)	1978-1988
Regime two (R-02)	1989-1994
Regime three (R-03)	1995-2005
Regime four (R-04)	2006-2014
Regime five (R-05)	2015-2019

Thus, policy makers will get the opportunity to identify and formulate effective policies. It will also be important in efficient allocation of public resources and proper allocation of government funds to achieve the sector's development.

However, to date, the association between alternative policy regimes and agriculture sector's performance remain far from clear. Hence this study aimed to analyze the effect of alternative policy regimes on agriculture sector's performance.

Approach and results

A review of agricultural policies in Sri Lanka has been conducted with respect to five alternative policy regimes based on the political ideology that motivated state's governance. Four sub sectors; domestic agriculture, plantation agriculture, livestock and fisheries were reviewed.

The analysis demonstrates that the policy manifesto of R-04 (2006-2014) has given equal high priority to each of the agriculture sub sectors. This regime has considered even the commodity levels of each sub sector in formulating the policy. This is the main feature that identified in the policy manifesto of R-04.

Compound Average Annual Growth Rate (CAAGR) was calculated for each sub sector to estimate their impact on growth. Regime four (2006-2014) recorded a 6.54% growth rate. This could have been a result of giving equal high priority to each subsector. Also R-04 gave much weight to the

agriculture sector compared to service and industry sectors. This finding suggests the importance recognizing and giving appropriate weights to commodity levels in formulating agriculture sector policies.

Policy criteria	R-01	R-02	R-03	R-04	R-05
Rice sub sector policies	*	*	**	*** *	***
Tea sub sector policies	*	*** *	***	***	***
Livestock sub sector policies	***	*	**	*** *	***
Fisheries sub sector policies	*	**	***	*** *	*

Degree of priority given

**** High, *** Moderate, ** Low, * Very Low

Policy Recommendation

Over the past 40 years, each government has recognized the importance of agriculture sector and brought various policy strategies aiming at agricultural sector's progress. Nevertheless, each of these past policy regimes have not been equally effective in bringing the desired change. The growth rate found to be high when policies recognized the importance of each commodity in each of the agriculture sub-sectors. It is recommended therefore to consider that each of the agriculture sub sectors are equally important for the growth of the sector.

Authors

1. Ms. W.G.C.Ashani
2. Dr. A.P.S. Fernando

What Drives Vegetable Growers' Adoption of E-marketing?

02

What Drives Vegetable Growers' Adoption of E-marketing?

Introduction

The vegetable production sector, which accounts for nearly 10% of agricultural GDP, is essential to ensure food security in Sri Lanka and to improve the livelihoods of agrarian communities. However, it faces a number of challenges, including frequent pest and disease outbreaks, market inefficiencies, and limited access to productive inputs. In recent years, marketing challenges have outweighed production-related challenges for the vegetable production. Transportation difficulties due to poor market infrastructure, the involvement of more middlemen, irregular and seasonal price fluctuations, safety and quality deteriorations, and high post-harvest losses are the common issues in vegetable marketing.

Due to these issues, the living standards of the majority of small-scale vegetable producers' are negatively impacted, and consumers in general are negatively affected on a regular basis.

Key Messages

- Agriculture e-marketing has many advantages over traditional marketing
- The "*Govipola*" app is Sri Lanka's first and largest online agricultural trading platform
- E-marketing is not widely adopted by vegetable growers
- To encourage the use of e-marketing by the vegetable growers

1. Develop digital literacy among growers
2. Set up a regulatory framework
3. Increase awareness of agricultural e-marketing

The E-Agricultural Strategy (2016), launched by Sri Lanka's Ministry of Agriculture in accordance with the guidelines of the E-Agricultural Strategy Guide for Asia Pacific countries, is a recent effort to improve the marketing efficiency of agricultural products. One of the primary strategic focuses of this initiative is on agricultural commodity e-marketing.

E-marketing refers to methods and techniques that offer online access to potential customers. Agricultural e-marketing is the online marketing of agricultural commodities by agricultural producers to any business entity or final consumer. It is evident that the use of e-marketing can increase business profitability and contribute to the sustainable development of businesses. Taking these benefits into consideration, many agricultural e-marketing platforms have been introduced in Sri Lanka. The '*Govipola*' mobile phone app, which was launched with the aim of improving consumer ties, improvi ng price knowledge, and balancing supply and demand to provide easy market access, is widely regarded as Sri Lanka's first and largest online agricultural trading platform.

However, existing literature indicates that agricultural e-marketing adoption by Sri Lankan farmers is minimal. According to studies, major constraints for agricultural e-marketing in Sri Lanka include a lack of ICT-based infrastructure in rural areas, inadequate awareness, limited perceived benefits to users, concerns about the quality of commodities, and a lack of funds to upgrade e-marketing platforms. Furthermore, it is recommended that immediate steps should be taken to overcome existing barriers in order to allow wider adoption. The key drivers of e-marketing adoption in the agriculture or vegetable production sector must first be identified in order to design appropriate actions. This study contributes to this need by identifying the factors that influence the adoption of e-marketing by vegetable growers in Sri Lanka.

Policy Background

Prior to the implementation of economic liberalization policies, the Sri Lankan agricultural marketing system was dominated by state sector interventions such as commodity marketing boards, purchasing mechanisms, and other interventions. The agricultural marketing system has undergone significant changes since the adoption of economic liberalization policies, and the recent policies have considered e-marketing of agricultural products, which is applicable to the vegetable production sector.

In here, the E-Agricultural Strategy (2016) highlights the prospective roles of information communication technology (ICT) in Sri Lankan agriculture, sets a vision for e-agriculture in the country whilst recommending specific action plans. Through vibrant e-agriculture marketplaces and efficient logistics, it aims to close the demand-supply gap and increase the reach and profitability of Sri Lankan agricultural products and services. This major policy consideration is also linked to the Sri Lanka national agricultural policy (2020), which promotes the need for market interventions and the facilitation of a market information dissemination system. Furthermore, the recent policy focusing on establishing a Technology-Based Society (Smart Nation) can be viewed as a supplement policy for promoting e-marketing in the agricultural sector.

The study

The purpose of this study is to identify the factors influencing the adoption of e-marketing by vegetable producers in Sri Lanka. The study sample consists of 100 smallholder vegetable growers from upcountry and low country vegetable growing regions, including 46 users of the "*Govipala*" app for vegetable marketing and 54 non-users of e-marketing.

The reference period of the study is the *Yala* and *Maha* seasons of 2019/2020. A questionnaire survey and key informant interviews are conducted to collect data. The key informants considered are e-marketing platform developers and administrators, related government and private sector officers, and farmer leaders. The data are analyzed using econometric techniques.

Policy Recommendations

❖ Improve growers' ICT/digital literacy

Agrarian communities, in general, lack higher levels of formal education and have limited access to the internet and computer networks.

As a result, farmers face challenges or are hesitant to use new ICT technologies such as E-marketing. According to research, only a small percentage of farmers use ICT tools in their day-to-day agricultural activities. Given the benefits of ICT applications in agriculture, many interventions have been made over the years to implement ICT in Sri Lankan agriculture. "*Govi Gnana*" centers" and "Rural Knowledge" centers are set up to empower farmers by connecting them to the World Wide Web.

Furthermore, cyber-extension projects that have implemented offline computer-based learning material for farmer education provide opportunities to improve digital literacy. Furthermore, collaborative projects between the private and public sectors, such as "*Govi Mithuru*," which provides timely advice to farmers on crop management practices, and an Agri Price Information Index, which provides daily wholesale market price information to registered farmers, are few other examples of ICT initiatives in the agriculture sector.

With the increasing availability of smartphones, a range of new mobile apps have emerged, and they play an important role in facilitating communication and knowledge sharing among Sri Lankan agro producers. However, many of these strategies have failed to meet expectations due to a variety of factors, one of which is a lack of digital literacy among key stakeholders, particularly farmers. Therefore, the farming community's digital literacy and financial literacy on e-transactions must be improved through well-planned training and awareness programs, as well as improved access to effective low-cost ICT platforms

.

- **Establish a regulatory framework and a guarantee scheme for agricultural e-marketing**

According to the findings, vegetable growers who prefer to take risks have a higher level of e-marketing adoptability, whereas risk-averse and risk-neutral growers have a lower level of e-marketing adoptability. The absence of a guaranteed mechanism and a regulatory system in existing agricultural e-marketing platforms is a major reason for this behavior. To ensure the market for agricultural products, forward market contracts have been introduced.

However, the effectiveness of such mechanisms is also affected by the buyer's ability to accept the entire volume of product, the level of agro-input prices, and the existence of an insurance scheme. This concept should be customized and introduced into the agricultural e-marketplace. In this case, a separate e-market base guaranteed mechanism with a regulatory framework of proper integration of administrators of e-marketing applications and other potential stakeholders such as state and private sector institutes is required. Furthermore, users should be made aware of these regulatory frameworks.

❖ **Increase agricultural e-marketing awareness among growers**

Growers who perceive agricultural e-marketing to be more useful and easier than traditional marketing are more likely to use it. Technology adoption behavior is directly related to the grower's intention regarding the considered technology. As a result, someone who believes e-marketing is more advantageous than traditional marketing is more likely to use it.

Similarly, individuals who believe e-marketing platforms are user-friendly are more likely to adopt them. Growers' perceptions of the usefulness and usability of agricultural e-marketing can be improved through increased awareness. Therefore, farmer awareness programs on the benefits of agricultural e-marketing, available agricultural e-marketing platforms and their operation are recommended.

Authors

1. Ms. W.P.H. Jayarathna
2. Dr. A.M.K.R. Bandara
3. Mr. A.I.Y. Lankapura

Online Marketing during Covid-19

03

Online Marketing during Covid-19

Introduction

The COVID-19 pandemic has impacted every aspect of human lives. It has forced consumers to alter their shopping habits. The main reason for this shift is the convenience. Especially during a time like this Covid-19 pandemic, it helps to reduce the physical contact between people, allowing them to maintain social distance avoiding physical contacts.

As an agriculture-based country, even minor fluctuations in agricultural activities have a significant impact on the overall economy of the country.

Key Messages

- Covid- 19 pandemic has impacted consumers shopping habits all over the world
- Online marketing has become a great opportunity for marketers to respond and manage this crisis
- The brands need to maintain positive communication with their customers
- Online retailers should focus more on the quality of the products.

Agricultural marketing is critical to the economic survival of the agricultural production system.

As a result, agricultural marketing should continue to function in the country despite the challenges of the with the pandemic, the entire Sri Lankan economy is in a slump, and every business is suffering.

The current scenario necessitates an alternative method of maintaining market activities in order to ensure such continuity.

To keeping up with the global trends Sri Lankan society need to trends towards online marketing and to develop the sector catering to consumer demand motivating consumers to indulge more. A thorough understanding of the consumer's preferences and expectations is required.

This report aims to comprehensively cover the Sri Lankan context of consumer preferences and expectations for agricultural products and consumer satisfaction for online agricultural marketing to shift the Sri Lankan agriculture marketing sector from the traditional to the online market for more efficient and smooth operation during the COVID-19 pandemic.

Approach and results

A survey was conducted on 200 customers of all ages who have purchased agricultural products online. The questionnaire consisted of questions on consumer information, online shopping behaviors, consumer attitudes on online shopping decisions, consumer online shopping decision, and consumer-level of satisfaction.

The level of customer satisfaction with the online marketing of agricultural commodities was evaluated. Motivate factors of online marketing for agricultural products in Sri Lanka were also investigated.

The study revealed that most of the consumers preferred online marketing strategy though they are new to online agricultural marketing. Most people select the online agricultural marketing option to fulfill their household requirements due to COVID-19 restrictions.

Characteristics like the quality ,availability, variety, after-sale service, online security and delivery time of the agricultural products are the most considering factors affecting the consumer's level of satisfaction in the online marketing of agricultural products in Sri Lanka. Young and middle-aged consumers with an average to high-income level are highly motivated for online marketing for agricultural products in Sri Lanka. People who are located down in high-risk areas were motivated for online marketing for agricultural products in Sri Lanka.

Policy Background

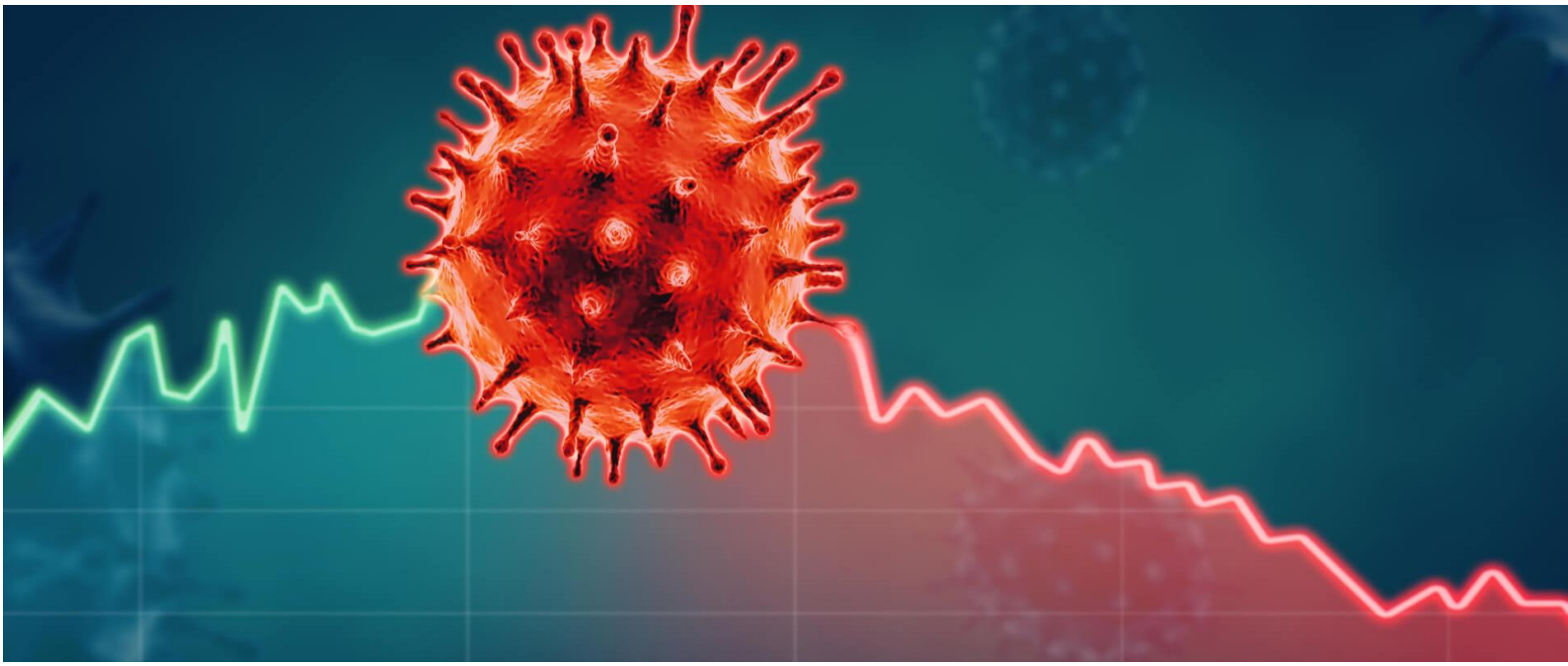
The Sri Lankan economy continues to rely on tactics developed for traditional physical marketing. The majority of the policies in place are geared toward traditional marketing techniques.

Despite the fact that the world is moving quickly with modern online marketing, infrastructural and legislative frameworks are not being updated in a timely manner to meet the changing marketing environment. For internet marketing, no adequate policy framework has been developed to improve cyber security and consumer privacy protection.

There is no formal institute or institutional assistance to develop and regulate the digitalization of marketing.

In Sri Lanka, there is no effective framework in place to capture changing consumer demand and requirements for online marketing. Policy changes in online marketing prompted by the COVID19 outbreak are causing ripples of changes in other nations. Still Sri Lanka in relying on outdated policies.

A proper comprehensive understanding is needed for the policy development related to online marketing especially in the context of agricultural marketing. This policy brief will help to bridge the void of unavailability of proper policy guidelines for shifting to online marketing of agricultural Products in Sri Lanka.



Recommendations

The COVID-19 pandemic has drastically impacted life, economy and consumer behavior around the world. The organization and marketers have to adapt to the new normal. Online marketing has become a great opportunity for marketers to respond and manage this crisis.

The brands need to maintain positive communication with their customer through various digital platforms and should not show any sort of hurry in selling the products. It is the most suitable time to invest in online agricultural marketing for businesses of all sizes.

The followings measure has to be taken. A successful strategy to popularize online agricultural marketing activities in Sri Lanka.

Online retailers should focus more on the following qualities of products and enhance the attributes like the freshness of products, price and discounts, quickness of delivery, packaging of the product, the organic or inorganic origin of the product to attract more consumers can be attracted.

Authors

1. Ms. S.A.A. Wirasinha
2. Mr. S.P. Dissanayake
3. Prof. (Mrs.) G.A.S. Ginigaddara

Do Non-Tariff Measures Restrict the Trade as High as Tariffs? Evidence from Sri Lankan Tea Industry

04

Do Non-Tariff Measures Restrict the Trade as High as Tariffs? Evidence from Sri Lankan Tea Industry

Key messages

- NTMs reduced Sri Lankan tea exports value by 48%
- It is recommended to,
  - Renegotiate the existing trade agreements
  - Identify the existing NTMs on Sri Lankan tea exports
  - Streamline the existing regulations and standards
  - Identify new regulations and standards

Introduction

Tea is one of the most important crops in Sri Lanka. It plays a key role in the Sri Lankan economy by providing employment opportunities and as a source of foreign exchange earnings. Sri Lankan tea is popular in the world as Ceylon tea. Also, the country ranked fourth place both in the world's production and the volume of exports in 2020 (FAOSTAT, 2021). Tea is produced throughout the year, with a total output of around 300 million kilograms in approximately 200,000 hectares of tea land extent (Central Bank Annual Report, 2019). In 2019, the growth of green tea cultivation accounted for 0.7% of the total Gross Domestic Product (GDP) of the country (Central Bank Annual Report, 2019).

As a product that generates a significant amount of foreign exchange, it contributed 11.27% of Sri Lanka's total export revenue for the year 2019 (Central Bank Annual Report, 2019).

Considering the composition of agricultural exports, tea accounts for the largest share, which is 55% in 2019 (Central Bank Annual Report, 2019). In 2019, the export volume of tea was approximately 292,657 metric tons (Tea Exporters Association Sri Lanka, 2019).

Although there is a significant contribution to the Sri Lankan economy, tea exports have shown a downward trend in recent years due to various reasons. The volume of exports has declined over the past decade with some remarkable negative impact on the competitiveness of Ceylon tea in the world market (Ismail et al., 2020). It is argued that Non-Tariff Measures (NTMs) are one of the reasons for the downward trend in the world agricultural trade and tea is not an exemption.

Policy Overview

Trade barriers such as tariff barriers and NTMs regulate international trade. The countries can enhance their economic gain from international trade by reducing these trade barriers. The reduction of trade barriers and facilitation of international trade can be achieved through trade agreements. Sri Lanka also has signed many bilateral and multilateral trade agreements in order to attain the above-mentioned objectives.

Agricultural products have a greater frequency of NTMs than other items around the world (Mohan et al., 2012). As a key agricultural commodity that is traded all over the world, tea is also subject to NTMs. According to the literature, Sanitary and Phytosanitary (SPS) regulations and food safety standards have become key roadblocks to tea exports around the world (Dong & Zhu, 2015). Because NTMs added to the production cost, they could diminish the volume of exports and increase the price of export goods.

According to Figure 1, both the average frequency of NTMs and the average tariff rates for tea have fluctuated over the period under review. However, both are steadily increasing over time. It reflects the fact that tea exports from Sri Lanka are becoming more restricted.

Evidence from Sri Lankan Tea Industry

The impact of NTMs on Sri Lankan tea exports was examined using its major ten export destinations namely, Belgium, Canada, Chile, China, Germany, Japan, Russian Federation, Saudi Arabia, the United Arab Emirates (UAE), and the United States of America (USA) A Gravity model was estimated using the data on export volumes and values of tea, GDPs of countries, the distance between trading countries, presence of colonial relationships, tariff and NTM data of ten export destinations for the period 2010 to 2019 for tea product at a 4-digit level in the Harmonized System (HS).

It is evident that from 2010 to 2019, NTMs for tea exports from Sri Lanka have increased. The highest frequency of NTMs was reported in 2019 and the lowest in 2015 (see Figure 2). When considering each of the export destinations, the average frequencies of NTMs vary from 0.1 to 1. According to that, the USA, Canada, Saudi Arabia and Japan recorded the highest frequency of NTMs over the period of 2010 to 2019 (see Figure 3). These countries have imposed NTMs on tea exports from Sri Lanka every year over the period under review, while the other countries have not reported NTMs for some years. The percentage of tea exports from Sri Lanka subjected to NTMs was calculated using the coverage ratio.

Tea exports subjected to NTMs to the UAE show the highest percentage because the country imports a large volume of Sri Lankan tea and it has almost 90% of the average frequency of NTMs (see Figure 4).

The other variables of Gravity model analysis, the GDP of Sri Lanka, GDPs of importing countries, common relationships bear the positive signs implying some positive effects on tea exports of Sri Lanka. The other two variables; the distance and NTMs bear the negative signs. The variables distance, tariff and NTMs are considered as proxies for trade costs. According to the theory of gravity model, trade costs are inversely proportional to the trade flows.

NTMs add a significant amount of cost to the trade. It means that NTMs have a negative impact on trade flows

such as the export flow of tea from Sri Lanka. The results of this study confirm that NTMs have a negative significant effect on tea exports from Sri Lanka. In magnitudes, when an importing country imposes one additional NTM on Sri Lankan tea, the value of tea exports declines by 48%, which is substantial. Tariff equivalent value implies that NTMs have a 65.32% impact on tea exports from Sri Lanka as comparable as the tariff.

Distance between trading countries is also attributed to a certain amount of trade cost. Quantitatively, a 1% increase in the distance to Sri Lanka's export destination leads to a 0.57% reduction in the value of tea exports. The GDP of importing countries was found to increase the value of tea exports. It shows that a 1% increase in the importing country's GDP causes an increase in the tea export value of Sri Lanka by 0.13 %. According to the results, the GDP of Sri Lanka has a positive impact on the value of tea exports.

The variable related to culture should have a positive impact on trade. The colonial relationship shows a positive effect on tea exports. If the export destination that Sri Lanka chooses has a colonial relationship, the tea exports are likely to be boosted by 103.4 %.

Policy Recommendations

The evidence from the Sri Lankan tea industry shows that there is a negative impact on tea export value due to NTMs imposed by tea importing countries. The study also finds that the tariff equivalent value of the NTMs imposed on Sri Lankan tea is as high as 65.82% reflecting the importance of taking into negotiations as the NTMs effect is also as high as tariff although it is not visible as a tariff. Furthermore, it implies how big the price raising effects and hence the trade restriction effect.

The trade agreement is one of the solutions to reduce the NTMs like trade barriers. Already Sri Lanka takes part in some bilateral and multilateral trade agreements to reduce the tariff and NTMs. To reduce NTMs on Sri Lankan tea exports, the country can go for a renegotiation of those trade agreements.

And it is necessary to look for a negotiation with other export destinations to reduce or remove trade barriers on Sri Lankan tea to boost the economy of the country through export gain from Ceylon tea.

There is a need for review to identify the existing NTMs on Sri Lankan tea exports, to take precautionary actions to reduce some trade restrictions on tea at the preliminary level. The review can be taken as an aid to identify new regulations and standards that want to be implemented and to streamline the existing regulations and standards.

On the other hand, the country can improve the infrastructure, human resources, institution structures and capacities to increase the standard and the quality of the Ceylon tea. Maintaining the standards and increasing the competitiveness of Sri Lankan tea has become vital aspects of the Sri Lankan tea industry.

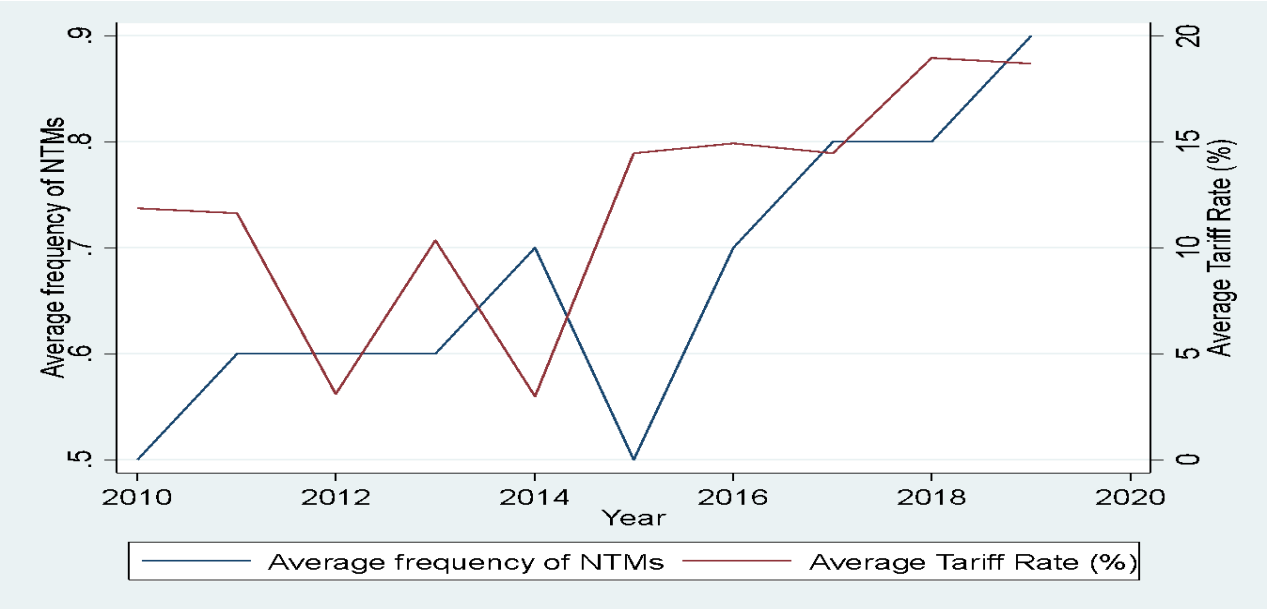


Figure 1. Changes of Average Tariff Rates and Average Frequencies of NTMs on Sri Lankan Tea Exports

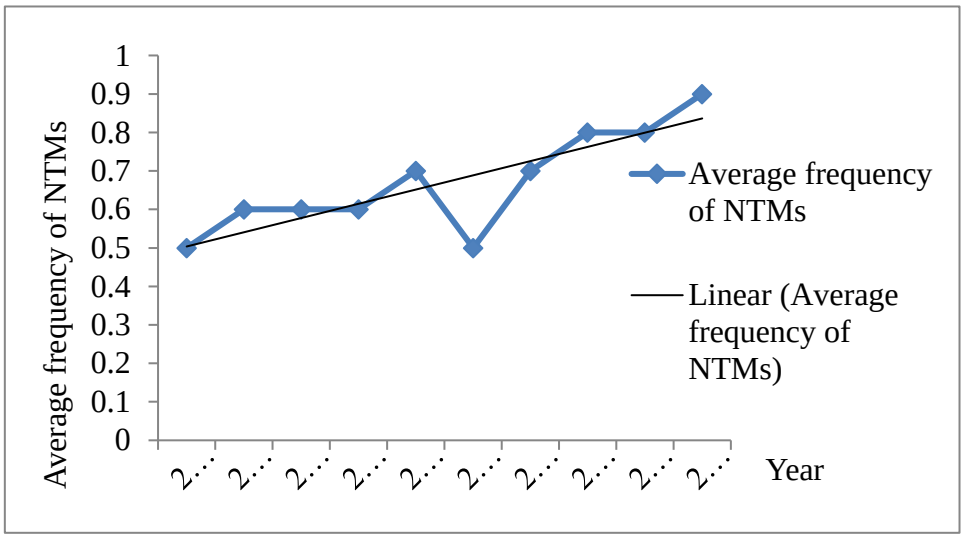


Figure 2. Average Frequencies of NTMs

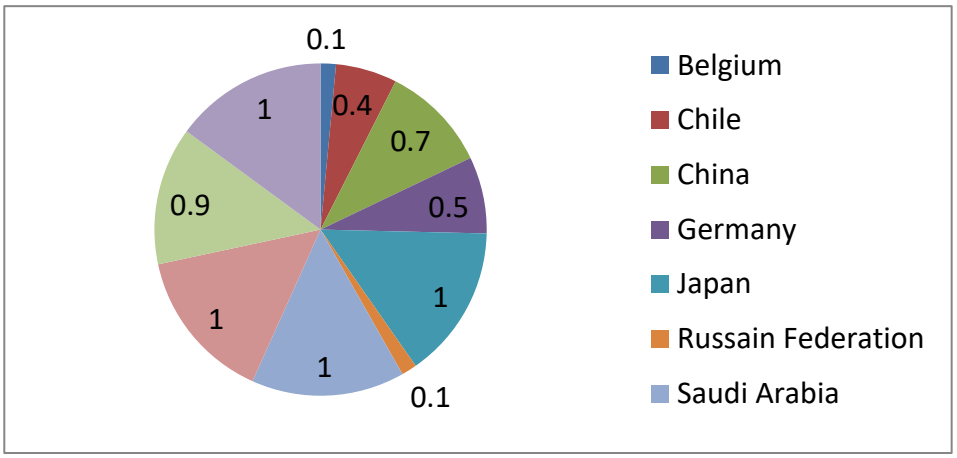


Figure 3. Average Frequencies of NTMs of Different Export Destinations

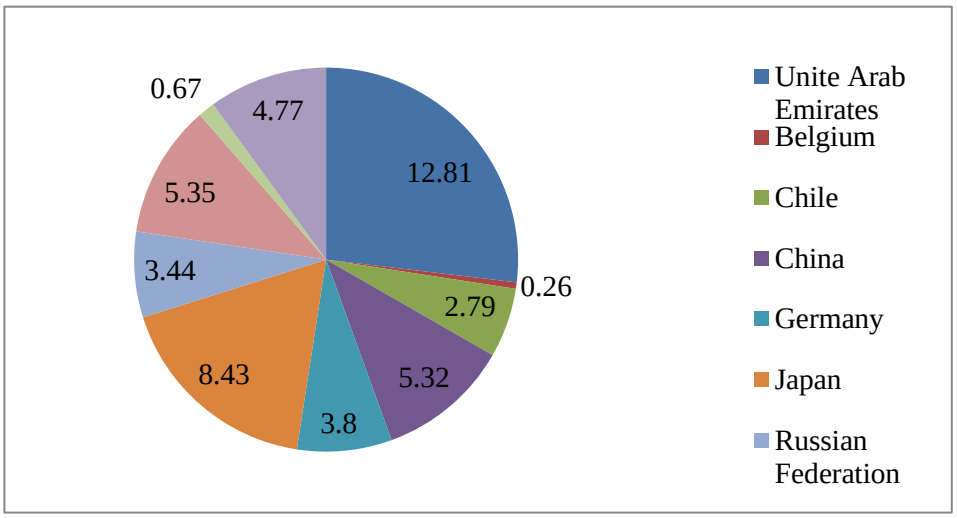


Figure 4. Percentage of Tea Export Subjected to NTMs (country)

Authors

1. **Ms. A.B.A.W. Pushpakumara**
2. **Dr. (Mrs.) S.N. Dissanayake**

Farmer Organizations and Minor Irrigation Systems

05

Farmer Organizations and Minor Irrigation Systems

Introduction

Irrigation plays a key role and is considered as the backbone of the Sri Lankan rural agricultural economy. For instance, in Sri Lanka, about 70 % of accessible freshwater is used for agriculture. Furthermore, dry zone paddy production, which is directly dependent upon irrigated water supply, is occupying a greater share (70%) of national paddy production.

At the most basic level, an irrigation system consists of physical and social elements it that takes water from a source, such as a river or well, and delivers to some other place for watering plants. According to the Sri Lankan classification village tanks, which provide irrigation water to the command areas of less than 80 ha are classified as minor irrigation systems.

Key Messages

- Irrigation systems in the dry zone plays an important role in agriculture
- Proper functioning of CBOs are essential for the management of the irgation systems
- Policymakers and responsible authorities need to take intrinsic actions to encourage FOs' effectiveness in maintaining MISs, while making them aware of sustainable benefits of village-based agriculture

The village tanks (minor irrigation systems) have played a greater role in shaping livelihoods within the lowland dry zone and life in most villages continues to revolve around these systems.

Participation of farmers in construction, operation, and maintenance of irrigation system has been one of the key aspects of

irrigated agriculture since ancient times.

The ancient irrigation management systems were sustainable with the bottom-up development approach enriched with active community participation. Although, the top-down management system was initiated by the centralized agencies, but the system was not successful due to limited community participation.

Then the Department of Agrarian Services was established in 1958 to encourage farmer participation in irrigation development. In 1991, the Agrarian Services Act No. 58 was amended to establish farmers' organizations (FOs) and to give legal authority to FOs to undertake irrigation contracts. Though this represented the best alternative for farmers, the creation of FOs on village boundaries complicated the independent functioning of FOs.

With the assigning operation and maintenance responsibilities to farmer organizations, making improvements for operation and maintenance of irrigation systems.

However, still there is a doubt on the efficacy of farmer organizations' in maintaining minor irrigation systems (MIS) effectively. The performance of MISs is diminishing due to unattended maintenance by FOs. Hence, this study is to evaluate the effectiveness of farmer organizations in maintaining minor irrigation systems.

Policy Background

With the institutional evolution, responsibility of minor irrigation systems maintenance was transferred to farmer organizations.

"*Rajakariya*" system- maintained by community themselves ("*Gamarala*" is the responsible person)

↓

"*Vel vidane*" instead of "*Gamarala*" Under paddy lands ordinance in 1856

↓

Established irrigation department in 1900 (Government agents take the responsibility)

↓

Eshtablished department of agrarian service in 1958 under the paddy lands act

↓

In 1991, agrarian services act no.58 of 1979 was amended to established farmer organizations

Every tank, dams, canals, watercourse within the area of authority of any farmer organization, shall be subjected to the supervision of that farmers' organization (part vii, 81, (1)).

Embankment reservation or other irrigation works within the area of authority of any farmer organization shall be subject to the supervision of that farmers' organization (part vii, 81, (1))

If anyone dumps any waste matter into the canal, watercourse, irrigation reservation, the farmer organization within that area may be reported (part vii, 85).

Every farmer organization shall ensure the efficient management of water, irrigation works and water used for agricultural activities (part vii, 86, (1))

The farmer organizations interference with the protection of irrigation, if blocked up, obstruct or encroached upon or caused to be a canal, water course, bund, bank, reservation tank, dam, tank reach, or irrigation reserve (part vi, 83)

Approach and Results

Study collected data from a survey of 82 farmers from 7 farmer organizations in *Siwalakulama* cascade area of *Galenbindunuwewa* divisional secretariat.

Interviews were conducted during February 2021 to collect information related to maintenance activities of village tanks. The questionnaire addressed the information related to the farmers' socio-demographic factors, farmers' behaviors, and governance factors. Moreover, the questionnaire included open-ended questions to obtain details about the level of accomplishment of mandated task in Act.

According to the results, most of the mandated activities included in the Agrarian Development Act were generally practiced by FOs while there are some issues on timely completion and free-rider problems. This is a significant problem for the effectiveness of the irrigation systems' maintenance activities.

The study further identified that minor irrigation system (MIS) ecosystem maintenance, encroachment prevention and protecting MISs, efficient water management, and equitable water sharing were less practiced by the majority of FOs.

Group activities and responsibility, voluntary contribution, and natural resources management activities were practiced very poorly. Less responsibility of present leadership of FOs, low level of responsiveness and accountability of leaders, poor equitability, and less sensitivity directly affected the quality of leadership, communication, conflict management, and decision-making. Lack of proper transparency of FOs negatively affected the quality of FO financial management. Poor farmer participation was a key issue for maintaining MISs. FOs' less responsiveness for MIS maintenance requirements and needs of the member farmers, lack of transparency of operations and decisions, lack of accountability on the role of FO officers and member for

MIS maintenance were among the key governance issues.

Hence, FOs is less effective in maintaining MISs due to weak accomplishment of mandated tasks by the Agrarian Development Act, and governance issues. Traditional collective action is the foundation of effective FO. With the time climatic, demographic, and socio-economic factors were diluted. Therefore, lack of collective actions is leading towards the greater issues like reduction of effectiveness of FO while triggering the FO governance issues.

Policy Implication

Results suggest many policy implications to enhance the effectiveness of farmer organizations in maintaining minor irrigation systems. The findings highlight the need of providing strong extension services, farmer training and awareness programs to reduce the socio- economic and demographic changes in village-based agriculture like out migration of farmers, farming become a secondary income source and young farmers moving away from the tank- based agriculture.

Both government and non- government institutes support is needed to encourage the farmers by providing subsidies, equipment, resource allocation for the maintenance activities. Further, encouraging cooperation, group activities, collective engagements among farmers and officers is mostly highlighted by the study.

On the other hand, innovative policies are needed to be added by the government to enhance the effectiveness of farmer organizations and reduce the challenges faced by farmers while maintaining minor irrigation systems. As per views of the farmers and the responsible government officers, following suggestions could be highlighted.

01. Appointment of an officer to look after the maintenance of the tank with the assistance of the government.
02. Marking the boundaries of the tank reserve by using government surveyors.
03. Inclusion of new rules for maintenance of small canals and village tanks in new circulars.
04. Introducing new steps to make quick decisions because the time and money involved in getting a decision on legal action is huge.
05. Establishment of a fund for the maintenance of small tanks at the state level.
06. Develop new methods to increase the existing funds for the maintenance of small tanks.

Hence, policymakers, non-government sectors need to take intrinsic actions to encourage FOs' effectiveness in maintaining MISs, while making them aware of social, economic, environmental benefits of village-based agriculture.

Authors

1. Ms. S.K.D.S. Nisansala
2. Prof. (Mrs.) G.A.S. Ginigaddara
3. Ms. A.N. Kodithuwakku
4. Mr. A.H.M.S.W.B. Abeyrathne

Identifying the Socio-economic Impact of Human-elephant Conflict

06

Identifying the Socio-economic Impact of Human-elephant Conflict

Introduction

Sri Lanka provides habitats for 10% to 20% of the Asian elephant population at present. Therefore, the elephant population density in the country is higher than any other country in the Asian region. Human-elephant conflict (HEC) is a crucial social issue in Sri Lanka. North Central Province experiences this struggle to a greater extent. Anuradhapura district experience about 42% HEC incidents annually on average from the reported incidents in North Central Province.

A large number of elephant deaths have been reported in Horowpothana 38 (24%), Thirappane 17 (11%) and Mahawilachchiya 13 (8%) in the last five years in Anuradhapura District. Similarly, the highest number of human deaths was reported in Medawachchiya 09 (18%), Thirappane 08 (17%) and Nuwaragampalatha Central 08 (17%) in the last five years.

Key Messages

- HEC is a critical issue in Thirappane area which result in losses for both farmers and elephants
- Electric fences are the solely ideal strategy for protecting human habitation, cultivation, and lives from farmers point of view

The research was carried with the objectives of identify the factors affecting the human-elephant conflict, quantify the socio-economic damages on rural livelihood due to human-elephant conflict and find the practically possible strategies to mitigate human-elephant conflict in Thirappane DS division of Anuradhapura district.

Policy Background

Respective government agencies to HEC have focused on the issue already. However, measures such as electric fencing have not addressed the problem completely. This failure has created many negative impacts on both elephants and humans today. Statistics from the Department of Wildlife Conservation (DWC) show a huge loss and damage annually due to this struggle. On the face of it, the public is generally aware that the DWC spends large amounts of public money to compensate persons for the damage caused by wild elephants every year.

Results and Approach

A total of 50 respondents were selected by using the simple random sampling method according to the membership list of Agrarian Service division Thirappane covering five villages. Both primary and secondary data were collected for the study. The ordinal logistic regression analysis was conducted to identify the factors affecting the human-elephant conflict. The Binary logistic regression analysis was conducted to find out the practically possible strategies to mitigate human-elephant conflict in Thirappane DSD based on their point of views and experiences.

Descriptive analysis revealed that 74% of respondents have recognized the HEC problem has been increased compared to the past. Therefore, 98% of crop damages, 14% of property

damages, 4% of human casualties, and 2% of human deaths were reported compared to the past.

People were not compensated for the crop damages. As a result, people have taken their own management actions such as use Hakka patas which is made of gunpowder to kill the elephants, unplanned electric fence establishments, poisons and destruction of elephant habitats.

According to the Ordinal logistic results, the effect of rainy season, distance from water sources and are impacted on HEC in Thirappane area. There are few main drinking water sources only available to elephants in the area. Those are Nachchaduwa tank; Mallathu Oya sub branch and Ethungama tank where in villages also live nearby. Binary logistic model fit with the physical barriers and elephant drives. When considering the physical barriers to prevent entry of elephants to villages, the electric fences were the only significantly identified solution by the farmers over non-electric fences, live fences, and Trenches.

Clearing of a five-meter wide strip around fields or village, Watchtowers - at strategic points or at half-kilometer, string fences - with metal or glass objects, bulb/flashers and light or fire -were not identified as practical solutions by the respondents. The deterrent methods which discourage the passage of elephants into fields by cultivating unpalatable crops such as chili, sesame, citrus and tobacco were not found as a solution by farmers. Repulsion methods such as cause pain and injury, making noise using equipment were not identified. Driving elephants to protected areas was also not identified as a solution, returning to their former habitat.

Conclusion

HEC is a critical issue in *Thirappane* area which result losses for both farmers and elephants. As identified by the farmers, electric fences are constructed solely ideal for protecting human habitation, cultivation, and lives. Therefore, to be effective they need to be on the boundary of elephant habitat, and not inside forests. Fences established inside forests were difficult to maintain and a couple of years after construction

became nonfunctional. Additionally, such fences were much more likely to be broken by elephants.

Policy Recommendations

1. Proper management of electric fences
2. Land use planning can be used to solve the existing matters with participatory decision making.
3. Compensation schemes can make people more tolerant of damages caused by elephants, but most are often inadequate and highly bureaucratic.
4. Minimize the human settlements in elephant corridors and inside the remaining forest cover and establish buffer zones

Authors

1. Mr. U.B. Dayarathna
2. Mr. N.M.K.C. Premarathne

A Policy Guide to Upgrading Visitor Satisfaction in Agrotourism Under COVID New Normality

07

A Policy Guide to Upgrading Visitor Satisfaction in Agrotourism Under COVID New Normality

Introduction

Tourism is one of the world's major economic sectors. It is the third-largest export category and in 2019 accounted for 7% of global trade. For some countries, it can represent over 20% of their GDP and, overall, it is the third-largest export sector of the global economy. Tourism is one of the sectors most affected by the Covid-19 pandemic, impacting economies, livelihoods, public services and opportunities on all continents. All parts of its vast value chain have been affected. Export revenues from tourism could fall by $910 billion to $1.2 trillion in 2020. This will have a wider impact and could reduce global GDP by 1.5% to 2.8%.

In 2018, Sri Lanka was named the best country in the world to visit 2019, by Lonely Planet.

Better transport links, new hotels and a growing number of activities were cited as the reason for the South- Asian island being chosen for the top spot in the guidebook publisher's annual Best in Travel Awards.

It is undeniable that Sri Lanka's tourism industry has been affected today by the deadly Easter Sunday bombing in 2019 and the impact of the coronavirus from March 2020.

Key Messages

- Tourism is highly affected by the Covid-19 pandemic
- Maximum price rates should be set for tourists to overcome the existing situation
- Existing policies should also change accordingly

At the same time, other related sectors have been affected by the impact on tourism. But now we have to rebuild the Sri Lankan tourism industry and bring dollars into the

country to survive in the present economic crisis. It is essential that we first understand the issues associated with this, in terms of what steps can be taken to improve Sri Lanka's tourism industry.

But in these situations, we can't promote mass tourism in the country. So we have to promote alternative tourism around the country. Before improving alternative tourism, we have to identify, what type of activities, events, locations, food and beverages, health and safety measures that the visitors willing to have in alternative tourism. After that, we can improve those things in alternative tourism sites in Sri Lanka. We can make new rules, policies, new guidelines for that. But the government have to think about both sides, they have to satisfy visitors and also protect the owners of alternative tourism destinations.

Approach and Results

A visitor survey was conducted covering 96 local and 64 foreign visitors at four selected destinations. The survey was carried out from 2019 to 2021 in Sri Lanka, covering two main holiday seasons of the country. Addition to the visitor survey, key personal discussions were conducted with hotel management, hotel staff, and safari guide at each destination to gather. The study analyzed the local and foreign visitors' satisfaction, choice of visitors expectation, constraints and potentials to promote agrotourism as an alternative tourism with COVID new normal condition.

The study concluded that local visitors and foreign visitors were dissatisfied with some educational and festival activities, food habits and hotel environment situations. Further, local visitors highly expected luxury locations, tours, pool swimming, entertainment and gaming activities while the foreign visitors highly expected the traditional places to stay, educational activities and tours, adventure activities and, traditional and cultural festivals in the agrotourism destinations. Because of Covid pandemic, having more land areas in agritourism destination to maintain social distancing, adhering to Covid guidelines which also makes visitors closer to the nature is the biggest potential of agrotourism destinations

when compared to mass tourism in Sri Lanka.

The main constraints in Covid new normal period faced by the administration of agrotourism destinations are lesser possibility of offering discounts for the services, extra expenditure on health safety of the visitors and sanitary services and lack of experience to face this kind sudden pandemic situation.

The study revealed that the number and quality of educational programs (guided farm tours, demonstration programs, and practical sessions) were not up to the standards. Although the cultural festival, food preparation practices, feeding animals, bird watching, and crop tour were operated, special programs such as sleeping on straw, harvest festivals, food festivals, gaming

event, petty zoo, and farming equipment demonstration were not found in the surveyed destinations. Hence, hotels and destination management have to develop these kinds of activities and tours to attract more foreign and local visitors. Selling processed farm product, value-added products and herbal items at the destination was not much popularized among agritourism operators.

Facilitate visitors to buy farm products and introduce activities like U-pick your own, and cook your own may diversified the income of operators.

The farm facilities are much important to operate sustainable agritourism activities.

According to the findings the farm facilities were not in a satisfactory level in some of the destinations. Since farms are small in size, they cultivate crops and rear livestock at a small-scale level. Consequently, only limited activities were included as agrotourism activities. As solutions to these problems, the Government should have a national policy to support these small scale agritourism operators through facilitating them to invest on their farming activities, make the linkages with near farmers and community, and other in-lined service providers in tourism sector in Sri Lanka.

Learning and getting acquainted with new technology to enhance the

efficiency and effectiveness of the staff members at the agrotourism destinations is very much crucial. In most of the places, the hygiene and sanitation situation was not up to the present situation. It basically needs covid protective equipment, Sanitizing items, special training for staff, prepared isolation rooms if it is needed, etc.

The important suggestion for all mass tourism and alternative tourism destinations were observances of the covid-19 guidelines issued by the government. This is not only for the agrotourism destinations but also all the tourism destinations. Agrotourism destinations' need to keep close contacts with the MOH office, police station, hospital, and Ambulance services in order to guarantee quick services in corona cases that arise whenever required.

It is better to arrange different price schedules for local visitors and foreign visitors. Facilitate payments at the property and free cancellation due to any health reason may catch many local visitors to agrotourism destinations compare to mass tourism destination. Agrotourism operators have to introduce and rearrange agrotourism related new activities to targeting local and foreign visitors. Substantial improvements in tourism infrastructure especially in rural remote areas and ensuring the security and safety measures for protecting visitors against thieves,

wild animals, and accidents would be important in tourists attraction.

Policy Recommendations

Government can make the maximum price rates for agritourism service providers according to the standards of the facilities. It is better to make maximum price rates separately for local visitors and foreign visitors. It will definitely help to promote local visitors involvement in any kind of tourism.

Considering the present covid situation, we can suggest some changes and new policy to No 38 of 2005, Tourism act. Government can enact some policies for all types of tourism destinations using this act. Using 1 section 3rd chapter in 38 of 2005, Tourism act, the government can enforce exact room sizes and attach bathroom regulation for all mass tourism and all the alternative tourism destinations. It helps to confirm each room has separate bathrooms. Then it will help to reduce unnecessary gathering in common bathroom areas.

Recommend changing the 3rd section 4th chapter in 38 of 2005, the Tourism act. It is related to the common area. The act said that the common area must be an air conditioned area.

But considering the present situation, it is better to switch-off air conditioning machines in the common area and provide natural air to open the doors and windows in that area. That will help to reduce covid spread situation in tourism hotels.

And also, recommend changing the 3rd section in the 4th chapter in 38 of 2005, the Tourism act. It is related to the bedroom. It shows the items must-have in the hotel bedroom. Besides that items, it is compulsory to add Sanitizer bottles, face masks, face shields to bedrooms and discard those things after the visitor check out the room.

The 7th section in the 4th chapter in 38 of 2005, the Tourism act. It is related to housekeeping. That point said that cleaning of visitors clothes and room items. Considering the corona situation it is better to clean visitors clothes separately nwithout mixing visitors cloths.

Also, recommend changing the 8th section in the 4th chapter in 38 of 2005, the Tourism act. It is related to the dining area.

It is better to provide permanent plates, cups, and cutleries etc to visitors until they check out the hotel. And also it is better to serve food and beverages directly to hotel rooms. If visitors request the buffet, it is better to arrange a few places to sit family-wise or room wise. And also it is better to arrange sitting places in an open area.

The 10th section in the 4th chapter in 38 of 2005, the Tourism act which related to safety and sanitary. The hotel or government can arrange an insurance system for all the visitors that arrive at the tourism destination, it will make trust and bond between visitors and hotels. That insurance will be related to covid and accident that happened in the hotel. And also it is important to display covid guidelines both inside and outside the hotels. It is better to be ready before the corona situation. So hotels can arrange and reserve a few rooms for quarantine and emergency situations. Quarantining and doing them regularly PCR/ RAT test for hotel staff is another important thing.

It is better to provide at least a 5 day quarantine period (with salary) before going on vacation and before joining the work after the vacation period for the staff members. And it must give proper practice to every hotel member regarding the corona situation. Also, hotels have to make direct connections with the MOH offices, hospitals and Police stations.

Recommended to change the 12- 1st and 2nd section in the 4th chapter in 38 of 2005, the Tourism act. It is related to entertainment, games, event and another arrangement. Additionally that we can add some extra activities related to agrotourism.

The guided farm tours, demonstration programs, and practical sessions, educational, entertainment, festival programs, cultural festival, food preparation practices, feeding animals, bird watching, crop tour, sleeping on straw, harvest festivals, food festivals, gaming events, petty zoo, and farming equipment demonstration are the expectations of agrotourism visitors.

So hotel owners can arrange this activity as same as the activities included in the act.

The 2nd point in the orders section in 38 of 2005, the Tourism act It is related to visitors registration. The government have to announce this as a very important policy for any type of hotel, guest house and rooms providers. It will help to track the visitors.

Authors

1. Mr. G.P.P. Sachintha
2. Mr. S.P. Dissanayake
3. Prof. (Mrs.) G.A.S. Ginigaddara
4. Mr. H.P.R.I. Senewirathna

Technical Efficiency of Terrace Rice Cultivation

08

Technical Efficiency of Terrace Rice Cultivation

Introduction

The demand for rice in Sri Lanka increases annually. Paddy cultivation is widely practiced in the Dry zone and Intermediate zone in comparison to Wet Zone at present. It's basically due to the favourable factors for paddy, availability of land and established irrigation facilities. Paddy cultivation in the Wet zone is practiced under rainfed and minor-scheme-irrigated small-sized paddy fields. Terrace rice cultivation is a practice in upcountry wet zone areas such as in *Nuwara Eliya* district where in the high elevation ranges.

Terrace rice farming is one of the most predominant agriculture in Asia and the Pacific countries at present.

Key Messages

- Labour use (in man-days) is positively impacted on the efficiencies of terrace paddy farming.
- In the case of the land area, it's negatively impacted and leads to inefficiency due to management difficulties.
- Irrigation is positively impacted on the efficiency which is important factor.

The terrace farmers in such countries use specific technologies and methods, related to irrigation and drainage, slope management, to receive a sustainable paddy harvest from hilly areas. Similarly, In Sri Lanka, the terrace rice farmers cultivate both *Yala* and *Maha* seasons. Typically, the Maha season (major cropping season) benefits from December to February annual monsoon rains, enabling larger plantings. The Yala season (minor coping season), conversely, tends to have lower water availability, resulting in lower plantings and lower paddy production. The issues like poverty, low access to organized markets for inputs and output, limited land area, water scarcity and poor technology adaptation are exists at present. The impact of these issues on the efficiency of terrace rice cultivation is still needed to examine to develop suitable policies in supporting it.

Policy Background

Sri Lankan current policies on paddy cultivation mainly focus on areas such as paddy purchasing schemes, improving the productivity of farmers, seed and input management, fertilizer subsidies and protection of farmers. These policies sufficiently cover all the major practices and requirements of a typical paddy farmer generally. However, the terrace farmers are engaged with other specific management practices and while putting extra efforts during rice cultivation such as to cope up the extreme climate, reduce soil erosion; maintaining and developing irrigation and sloppy fields, finding markets for inputs and harvests. Therefore, the available general policy practices are not sufficient enough to capture the specific requirements of this system.

Approach and Results

The study employed the Stochastic Frontier Analysis and Yield Gap analysis to examine the technical efficiency of terrace rice cultivation in *Walapane* division in *Nuwara Eliya* district. A total of 50respondents were randomly selected as ten terrace rice farmers from a single GN division.

Three (03) main factors, namely labour, land area and irrigation were identified as, that can be affected the overall technical efficiency of the terrace rice cultivation. Stochastic Frontier Analysis revealed, only 18 percent of terrace rice farmers have a high-efficiency. The yield gap analysis showed , only 36percent of terrace rice farmers have the high yield performances.

Recommendations

The terrace rice cultivation in *Walapne* division is technically inefficient as revealed by both Stochastic Frontier Analysis and yield gap analysis. Therefore, the present resource allocation is inefficient. As a result, terrace rice farmers are mainly engaged in subsistence level paddy farming rather performing at commercial level. Land management problems and high labour requirements and labour market dynamics mainly affect the efficiency. Irrigation positively affects the technical efficiency where minor irrigation systems only presence at present and have subsequent water scarcity.

In this regard, policies need to focus on land use optimization, provision of agricultural machinery. Therefore, further research and development efforts are needed to be supported by the future policies to produce suitable agricultural machinery for terraced rice fields to decrease the labour and costs. And also, it is important to make aware the best paddy cultivation practices and technology use in the rest of world in the similar systems via extension services. Further, the technologies for high water use efficiency, water management are needed to introduce to achieve high productivity.

Authors

1. Ms. A.L. Sujani
2. Mr. N.M.K.C. Premarathne
3. Dr. A.P.S. Fernando

Warehouse Financing System for Effective Food Marketing Systems

09

Warehouse Financing System for Effective Food Marketing Systems

Introduction

Declining agricultural commodity prices during the harvesting period has been detrimental to farmers and the government. The root cause to this situation is exceeding the supply over demand resulting from distressed sales by famers. This situation creates buyer's market in which buyers can influence in pricing making adverse impact to the farmers. Studies found that buyers' market results from selling farm product soon after the harvest to meet the immediate cash required for loan settlement and farming for the next plating period. To avoid this situation the government intervenes purchasing of over supply at a predetermined price and releases stored quantity at the lean supply period to stabilize the prices. This has been a common practice in both developed and developing countries for decades.

Key Messages

- Innovative marketing policy strategy of warehouse receipt financing system is essential to Sri Lanka to reduce food price fluctuation and increase in farm income.
- Farmers' awareness and understanding about the WRFS should be enhanced
- The warehouse manager should be responsible for the sustainability of WRFS
- Group marketing should be introduced to increase profitability and easy selling
- Existing legal environment should be reviewed and investigated the need of a new act similar to other successful countries.
- Ad hoc pricing policy should be avoided to reduce price uncertainty.
- Establishment of an indemnity fund is necessary to ensure the reliability of the WRFS.
- The strategy of build-operate-transfer (BOT) is proposed to sustain the WRFS.
- Maintaining the registered list of
- Buyers for selling stored products enhances the market accuracy.

This paper describes the innovative marketing policy strategy of warehouse receipt financing system (WRFS) and provides research- based policy solutions to function the WRFS efficiently and effectively in Sri Lanka.

Warehouse receipt financing system (WRFS)

Warehouse Receipts Financing System (WRFS) was introduced to borrow loans from the bank by keeping the commodity as collateral. Farmers store their products in a licensed warehouse and receive a receipt from the warehouse manager certifying the quality, quantity, and the grade under the system. Warehouse receipts financing is a proven instrument for allowing farmers, traders, processors, and exporters to obtain finance secured by goods deposited in a warehouse. There are mainly two types of warehouses known as private warehouses and public warehouses.

Private warehouses are owned and managed by the manufacturers or traders to store, exclusively, their own stock of goods.

Public warehouses are run to store goods of the public. Anyone can store his goods in these warehouses on payment of rent. The government also regulates the functions and operations of these warehouses.

There are four entities involved in operation of the WRFS:

1) Warehouse depositors

2) Warehouses operators

3) Financial institutes

4) Government regulatory body

The well-developed warehouse receipt system is characterized by an enabling legal and regulatory framework, a regulatory and supervisory agency, licensed and supervised public warehouses, insurance and financial performance guarantees, and banks familiar with the use of warehouse receipts. The WRFS is used in many countries around the world.

In the United States, systems for bank lending against warehouse receipts have been in existence since the mid-nineteenth century.

In the Philippines and Indonesia, it was started in 1932 and 2006 respectively.

Asia commenced the WRFS system in early 21st century with donor assistants such as World Banks and European Union. In Sri Lanka, the WRFS was started in 2013 with the World Bank assistance. The first warehouse was set up in at Upuldeniya (Anuradhapura) to store paddy, maize, sesame, soybean, cowpea, and black gram. At present there are 6 warehouses known as Grain Preservation Centers (GPCs).

A total storage capacity of around 48,000 Mt is available in those centers to store the products such as, paddy, maize, soya bean, sesame, black gram, pepper, and peanut. However, the capacity utilization of six warehouses was only 2955 Mt which is only a 6.16% of the total capacity in 2019. As utilization capacity is very low the expected objectives of WRFS program could not be achieved.

Nevertheless literature shows that the WRFS can be implemented successfully due to low transaction cost.

A case study was conducted GPC at Embilipitiya in 2021 to examine the factors affecting low performance of WRFS. The following policy recommendations are provided based on the study findings and lessons learnt from success stories from other countries.

Policy Recommendations

1) Farmers' awareness and understanding about the WRFS should be enhanced. Farmers have strong negative perception that the WRFS has complicated regulations and not having easy access to credit from the bank. It is better to organize some demonstration programs to show the benefits to the farmers, traders, and banks. In this effort, a strong cooperation and commitment of all the partners is a necessary condition to success the task. Although a book was published for the publicity, majority of farmers have not seen it. It is worthwhile to publish a small handbook highlighting the benefits of the program and deliver it to framers at the time of conducting awareness programs.

In addition to farmers, officers such as Development Officers, Agricultural Instructors, and Agricultural Research and Production Assistants who are working at divisional and village levels should be made aware because they need to act as facilitators in implementing the WRFS. Hector Kobbakaduwa Agrarian Research and Training Institute (HARTI) of the Ministry of Agriculture should take Responsibility of conducting the awareness program because it has a separate training division with specialized trainers.

2) Since the main potential factor for the sustainability of the WRFS is the creativity of the warehouse staff because they coordinate famers, bankers, and buyers. They should be proactive in the business development to compete with the existing marketing channels. Provision of adequate assistance such as residential and transport facilities and training on business development especially customer relationship building is required.

3) Group marketing should be introduced to increase profitability and easy selling. The study found that individual famers have difficulties in transporting the produces and hence they tend to sell their products to traders mainly who come and purchase at farm gate even at a lower price. Existing famer organizations should be strengthened to undertake group marketing for the benefit of their members. Department of Agrarian Service can pay a major role in this regard because farmer organizations are under the department purview and it also has network in country. At divisional level the department has Agrarian Service Centers established during the close economic period to coordinate input supply, extension and credit which were the major issues at that time. Marketing was not the issue as it was in the hand of the government. After liberalization of the economy in the late 1970s marketing of agricultural products is in the hands of the private sector which results in creating divers problems mainly

due to lack of business discipline both in traders and framers. Agrarian Service Centers can play a major role in improving food marketing system in the country by providing business supporting services such as linking small farmers to markets. In this context, the Department of Agrarian service should involve in implementation of the WRFS.

4) Existing legal environment should be reviewed and compare with other countries because strong legal environment is required for the success of the WRFS. Banks are reluctant to join this program due to time consuming and costly of taking legal actions to those who violate the agreement. In many countries such as USA, Indonesia and Philippines, the new Act was enacted to operate the WRFS. The Act clearly stated rights, liabilities, and duties of five partners (farmers, warehouse operator, bank, government and the output buyer).

5) Ad hoc pricing policy should be avoided by the government and price fixing should be done objectively enabling that the WRFS is attractive. Under the present policy environment, future price cannot be forecast accurately. For example price fixing procedure for paddy and rice is not clear and no proper time to announce them.

Farmers interviewed in Hambantota area reported that selling paddy at harvest time is more profitable rather than using the WRFS. Country like India and Pakistan has a strong mechanism to fix and announce procurement prices.

6) It is necessary to establish an indemnity fund to ensure the reliability of the WRFS. The indemnity fund provides a guarantee to cover the potential losses such as price reduction, quality deterioration and unsettled loans. At the outset, the government should contribute money to the fund and later a self-fund generation program should be implemented.

The Bulgarian Ministry of Agriculture provide a three-year interest-free loan of US$2.5 million for the initial capitalization of an indemnity fund in 1999. The Bulgarian WRFS has been quoted as the most successful one in many literature and used as a benchmark in other countries.

7) It is proposed to adopt the strategy of build-operate- transfer (BOT). Under this strategy, there should be one responsible agency to implement this program and after successful operation it can be handover to the efficient party either farmer organization or bank. Since this program was initiated by the Department of Development Finance of the Ministry of Finance in collaboration with the World Bank the same department can get responsibility to operate the BOT strategy.

8) Maintaining the registered list of buyers for selling stored products enhances the market accuracy. Special attention should be given to attract the institutional buyers such as suppliers to hospitals and forces and bank customers. The responsible agency of operation of the WRFS should initiate this activity

Authors
1. Ms. P. Srimali Kolambage
2.Dr. L P Rupasena

Effect of Farmer Woodlot (FWL) Programme on Household's Livelihood

10

Effect of Farmer Woodlot (FWL) Programme on Household's Livelihood

Introduction

Forest resource management in the global level has been shifted from state-centered, top-down models to more people-centered bottom-up models to promote sustainable forest management while improving the livelihoods of rural people. With this trend, the government of Sri Lanka also involved in Community-based forest management practices. In particular, the Farmer Woodlot (FWL) Programme has been initiated by the Forest Conservation Department and forest fringe communities in Sri Lanka to improve the management of forests to support livelihoods and poverty reduction in the dry and intermediate zone under sian Development Bank funds in 1982. FWL programme is a people-centred, community-oriented, resource-focused, and partnership-based management model.

Key Messages

- **Integration of the FWL activities with other livelihood interventions is important.**
- **To Enhance the accountability and transparency in management and utilization of the forest resources audit sessions should be introduced**

Currently, the FWL programme has been implemented in 18 districts across 197 FWL sites, benefiting approximately 125,000 individuals in the country covering about 23,500ha of forest land.

Policy Background

FWL programme was intended to achieve a few goals. 1. Increase tree planting and rehabilitate environmentally degraded/abandon areas due to Chena cultivation 2. Create employment opportunities and income and reduce poverty in rural areas 3. Strengthen the

institutional capability of the Forest Department and provide an opportunity to transform itself from a traditional and enforcement agency to a more development-oriented institution.

The forest policy of Sri Lanka in 1995 was aimed at the establishment of a protected area network, creation of permanent forest estates, encouraging agroforestry systems and building of rural industries based on non-timber forest resources as commercial ventures with partnerships from community-based organizations and the private sector. The beneficiary farmers of FWL programme have allocated about 0.2-10ha of degraded state forest land on a 25- year lease agreement which requires renewing after every five year. The incentives include the issue of free tree seedlings, food aid coupons, and the provision of technical assistance at the initial stage of the program. Farmers had to manage Woodlot by using their labour (family labour), time, and knowledge.

Teak *(Tectona grandis*), Neem *(Azadirchta indica),* Eucalypts *(Eucalyptus species)*, and Khaya *(Khaya senegelensis*) are the main species farmers used to cultivate. Considerable income from cash crops cultivated by farmers was expected to generate during the first 4-5 years. The medium-term income is expected to through pre-commercial and commercial thinning operations that occurred in 7 years and 14 years after the crop establishment. The final income is expected receive after harvesting timber at the age of 30 years, and 80% of the total income goes to the farmer, while 20% for the government. The FWL programme includes some other components to increase the peoples' involvement. Accordingly, home garden development, inland fishing and lagoon fishing, microenterprise development such as mushroom cultivation,

Ginger and Betel cultivation, carpentry, minor infrastructure development, mini-hydropower project and other socioeconomic benefits are such introductions. Hence, some benefits derived from the FWL programme spread beyond the FWL membership and are common to all families in the project area.

Later, due to increasing attention on sustainable forest management, the Forest Department of Sri Lanka prepared a strategy for Community Forest Management and requested Australian assistance under the Sri Lanka Australia Natural Resource Management Project (SLANRMP) to expand the FWL since 2012. Thus, assessment of the success on the initial FWL programme is essential to see the impacts of the programme on the livelihoods of beneficiaries.

Results and Approach

The study analyzed the effect of the Farmer Woodlot (FWL) programme on the livelihood assets development of beneficiaries in *the Godaulpatha* FWL site in *the Matale* district after 7 years of implementation. The study evaluated the effects on livelihood capitals to compare in two ways (1) before and after participation, and (2) participants and non-participants. This study followed the Sustainable Livelihood Framework in analyzing local livelihoods because it's combining both qualitative and quantitative data to fully understand people's livelihoods. The sustainable livelihoods framework highlights five capitals upon which livelihoods impacts can be assessed.

These are natural, financial, physical, social, and human capital (Table 1.1). The framework emphasizes that, for households to achieve positive livelihood outcomes, a range of capital categories are required, because no single category can sufficiently meet households' multiple and varied livelihoods needs.

The livelihood analysis indicated the FWL programme had positive effects on the livelihood assets of the participants and their entire five livelihood capitals have increased compared to non-participants and participants' pre-project conditions. The FWL programme has improved the human capital of the participants mainly through highly relevant training sessions conducted by the project implementing agency and other relevant government institutes. FWL participants have acquired scientific knowledge and skills through the training programmes and practised sustainable forest management activities learned through the training programmes. The programme participants have developed their natural capital through the increase in access to natural assets.

The physical capital of the FWL participants, particularly household fixed assets and other welfare facilities have been improved. their living standards and have been substantially developed because of the incentives and financial benefits derived from the FWL programme. FWL programme had helped to improve the level of social capital among the participants by organizing them into groups and forming social networks. Furthermore, an increment in financial capital resulted from remarkable changes in livelihood approaches (extended the cultivation land area, shifted from paddy cultivation to vegetable cultivation).

Recommendations

After promotion of the FWL programme, the beneficiaries have received positive effects on the livelihood assets. The further suggestions are drawn here to support the betterment of the beneficiaries as below by based on the observations of the study.

1. Forest and forest product-based small-scale enterprises are needed to support as important players which provide employment in high production levels.
2. Integration of the FWL activities with other livelihood interventions, such as infrastructure development, providing the soft loan and construction and maintenance can boost the effectiveness of such interventions

3. Establish Ecosystem and Carbon related income generation via FWL programme: Payment for Ecosystem Services (PES), payments for Carbon sequestration and other environmental goods and services

4. Consideration of suitable intercropping of annual crops, and including a mix of tree species to generate more regular income, such as nuts and fruits, in addition to the timber which harvested after 25-30 years from planting.

5. Awareness programs, educational training, and seminars should be conducted regularly by DFO, NGOs, and other related government agencies to both men and women to provide information and ideas on potential economic benefits. More educated people are seemed to be less interested in the FWL programme assuming FWL is targeted only at forest dependence, less educated people.

6. Sufficient fund intervention from the government is crucial to provide incentives and subsidies in the FWL programme.

7. Women's knowledge and skills should be fully utilized to foster better community-based forestry as well as to improve the livelihood of people.

8. Provision of more control to the beneficiaries, tenure security and strengthening the benefit-sharing procedure will be important to promote an effective, livelihood-oriented FWL

9. Enhance the accountability and transparency in management and utilization of the forest resources, in this regard, public hearing and audit sessions should be introduced

Table 01: Comparison of livelihood capitals before and after scenario and non-participants

Capitals	Indicators	FWL participants				Non Participants	
		Before		After			
		Indicator weight	Capital value	Indicator weight	Capital value	Indicator weight	Capital value
Natural Capital	Landholding Size	0.33 **0.54**		0.66	**0.84**	0.44	**0.56**
	Participation in Forest protection activities	0.62		0.92		0.67	
	Access to wood Based forest products	0.68		0.95		0.59	
Social Capital	Number of CBOs HH participate	0.42 **0.43**		0.84	**0.79**	0.51	**0.47**
	Relationship with FD	0.45		0.74		0.44	
Physical Capital	Wall Type	0.65 **0.54**		0.81	**0.68**	0.73	**0.59**
	Roof Type	0.80		0.92		0.83	
	Floor Type	0.66		0.76		0.70	
	Private vehicle Ownership	0.05		0.18		0.06	
	Ownership of semi-durable assets	0.57		0.76		0.67	
Human Capital	Household labour force	0.50 **0.35**		0.55	**0.62**	0.57	**0.43**
	Skills knowledge Due to training	0.20		0.70		0.30	
Financial Capital	Monthly Income	0.46 **0.46**		0.57	**0.57**	0.50	**0.50**
Sustainable Livelihood Index (SLI)		**0.46**			**0.70**		**0.51**

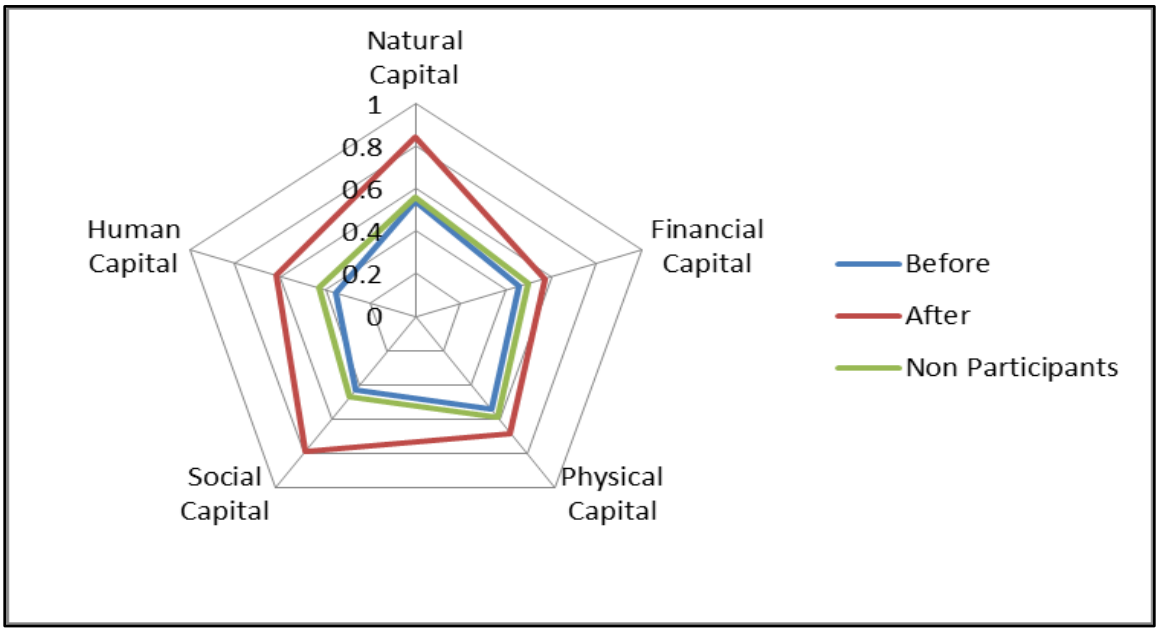


Figure 01 : Comparison of livelihood capital pentagons of before and after FWL intervention and non-participants

Authors

1. Mr. B.S.D. Buddawatte
2. Mr. N.M.K.C. Premarathne
3. Dr. A.P.S. Fernando

Demand for Cow Milk in Sri Lanka

11

Demand for Cow Milk in Sri Lanka

Introduction

Cow milk is considered as the most popular beverage across the world because it is widely recognized as a nutritious drink for people of all ages. It enriches with good source of Protein, Calcium, Vitamin D, Potassium and other Vitamins and Minerals. Medical researchers have recently found positive correlations between cow milk consumption and the reduction of risk for coronary heart disease and strokes. Cow milk can also provide benefits in weight management, and it is an important source of nutrient especially good for bone and teeth health. Despite huge benefits of consumption of cow milk, Sri Lanka cow milk consumption remains far below compared to the recommended level of the Medical Research Institute (MRI) and the other countries.

The annual per capita consumption of cow milk in Sri Lanka was 36 kg in 2018 as against to the recommended level of 60-65 kg. The per capita consumption of cow milk is higher in other South Asian countries: Pakistan (122.8 kg), India (69.2 kg) and Malaysia (50.9 kg).

Key Messages

- Cow milk is considered as the most popular beverage across the world.
- The level of cow milk consumption in Sri Lanka is low.
- Awareness about nutritional values of fresh milk is necessary for attitudinal changes of the people.
- Since powder milk is a substitute for cow milk pricing of milk powder should be carried out in a wise manner.
- Access to the cow milk should be enhanced through e-marketing and direct marketing.
- A special program for promoting dairy production should be implemented.

Unlike many other countries, milk powder consumption is popular in Sri Lanka, and it is an increasing trend while cow milk consumption is decreasing.

Majority of Sri Lankan consumers (63%) are used to consume full cream milk powder and cow milk consumption is limited to about 1 % of the population.

According to the 2016 Household Income and Expenditure Survey (HIES), at national level, average monthly household consumption of cow milk was less than 0.5 Litres in 2016, a decline from 2.75 Litres per household in1980/81.

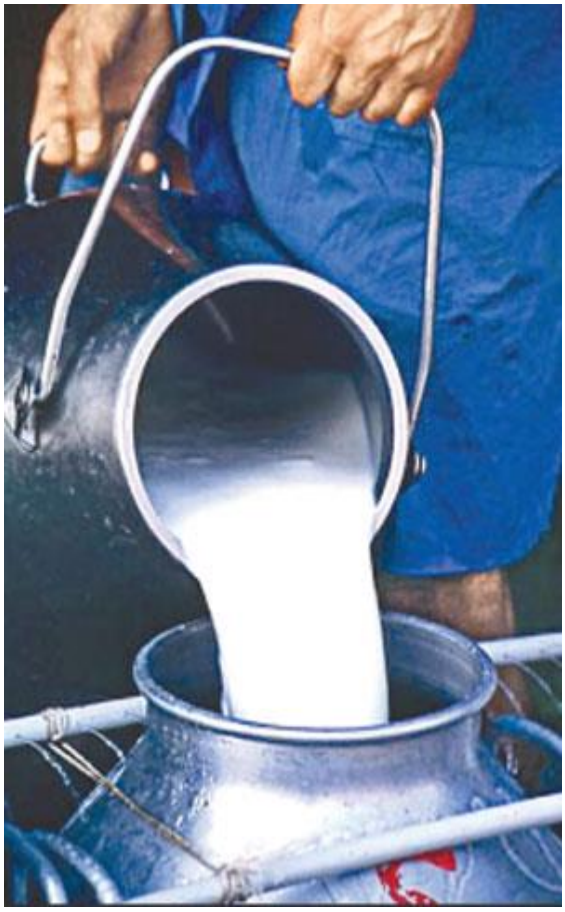
At present, the level of cow milk consumption in Sri Lanka is low: per capita consumption of fresh and powdered milk is 110.33 ml and 341.36 ml per month, respectively.

Policy background

In Sri Lanka, a significantly higher demand for powder milk over the cow milk is a critical issue due to high cost of imports. Sri Lanka spent over 300 million US dollars to import milk powder in 2020 which was reported as the third-highest food category in the import bill. In this backdrop, self-sufficiency in milk consumption has been a thematic policy area of the government policy agenda for decades. Despite the several efforts made by the successive governments during last four decades the country still produces only 40% of country's annual milk requirement. The current severe problem of foreign exchange resulting from the COVID pandemic situation milk powder imports curtailed considerably causing severe shortage of milk powder in the market.

Policy objectives

Present government aims to develop the local dairy industry by inducing the people to use cow milk instead of imported milk powder and promote milk production locally especially Northern province by facilitating refrigerators to milk storage and making effective milk collection system. Further, an increase in fresh milk production is one strategy proposed in the 2022 budget in the agenda of promoting the production economy. The Minister of Agriculture recently announced self-sufficiency in milk production within four years.



Policy recommendations

Based on the study carried out in 2021 to investigate factors affecting demand for cow milk the following policy recommendations are presented towards the promotion of fresh milk consumption in Sri Lanka.

1. People consume low fat milk powder and non-fat milk powder due to negative believes in health with cow milk consumption. Hence, it is necessary to make awareness about nutritional values of fresh milk for attitudinal changes of the people. It was found that nutrition related attitudinal factors are the key determinants of milk consumption levels. Ministry of Health should lead this awareness campaign especially using electronic media such as Rupavahini and face books. This is vital important in the presence of milk powder promotion programs made by multinational companies in a larger extent.

.

2. Since powder milk is a substitute for cow milk pricing of milk powder should be carried out in a wise manner. Past trade policies have supported powder milk consumption through lowering import tax. This situation is more serious because powder milk exporting countries have a huge subsidy for dairy farming. Accordingly, it is proposed to enforce ~~accecss~~ cess (special tax) on milk powder imports and allocate that money to promote local dairy production and fresh milk consumption.

3. Physical access to cow milk is also a problem. Milk powder is widely available even at village shops, but cow milk is mostly available in supermarkets which are in main cities. According to the HIES data in 2016 show that urban households have higher monthly per capita cow milk consumption than the rural and estate sector. This is due to availability of fresh milk in urban area.

National Livestock Development Board (NLDB) started setting up a milk bar in public places such as railway stations and bus standards but not continue. Since Sri Lankan consumers need tea early in the morning known as "bed tea" that is tea with milk, dour-to dour distribution program should be introduced like distribution of bread in early in the morning. In India, the milk cooperatives distribute fresh milk throughout the country in the morning. Studies showed that convenience in milk buying has a strong positive effect on fresh milk consumption among the rural households. Hence, effective marketing strategies such as direct marketing through digital platforms and roadside selling centres like "*Kolakada*" should be introduced.

The priority should be given to quality, quantity, price, and services which are key factors affecting successful marketing. The proposed government program of setting up a "home shops" at each village is an ideal place to promote fresh milk consumption at village level.

At the initial stage of promotion, high-income small families should be educated because studies found that such households have high tendency in consuming fresh milk with the availability.

4. In Sri Lanka, households use to consume fresh milk as an essential food item as evident by inelastic nature of demand in relation to its price. Hence, there is a room to develop fresh milk consumption. Also, there is a strong positive relationship fresh milk consumption and income. Since Sri Lanka is now a high middle-income country potential for fresh milk consumption is high. At present per capita availability of cow milk is about 35 kg which is far below compared to counties in the region.

Hence, a special program for promoting dairy production should be implemented. Milk productivity per cow is low in Sri Lanka. It is around 3-5 Liters per indigenous dairy cow, but potential can go up to ten. The major reason for low productivity is inadequate feeds. This can be solved to a greater extent by promoting a crop integrated livestock farming system so that crop residuals can be used as animal feeds and livestock residuals can be sued for crop farming as organic fertilizer. Also, dairy farming can be promoted among the community due to its ability of generating daily income and hence it is considered as a “mobile bank” in the literature.

Authors

1. Ms. K.W.Y.P. Konara
2. Dr. L.P. Rupasena

Agricultural Graduates Entrepreneurial Skills and Employment

12

Agricultural Graduates Entrepreneurial Skills and Employment

Introduction

Graduate employability has become an issue of both global and national concern owing to the rise in the number of unemployed graduates. Compared to the other developing countries, the rate of unemployment among graduates of Sri Lankan universities are high. Still, university education is considered to be the most secured path of employment in high profile jobs by Sri Lankan citizens. However, many of the students have faced numerous challenges and difficulties in finding a right job that matches their qualifications. Some graduates are underemployed or even unemployed and it is hypothesised that they do not have required entrepreneurial skills.

There are around 1,470 of students entering to the eight agricultural faculties in Sri Lanka annually.

Key Messages

- About 52% of agricultural graduates in their first two years of graduation are currently unemployed
- Many, agricultural graduates have enough competencies in performing entrepreneurial skills.
- The reason for this high unemployment rate seems to be an external economic problem and it is not only a matter of skills mismatch

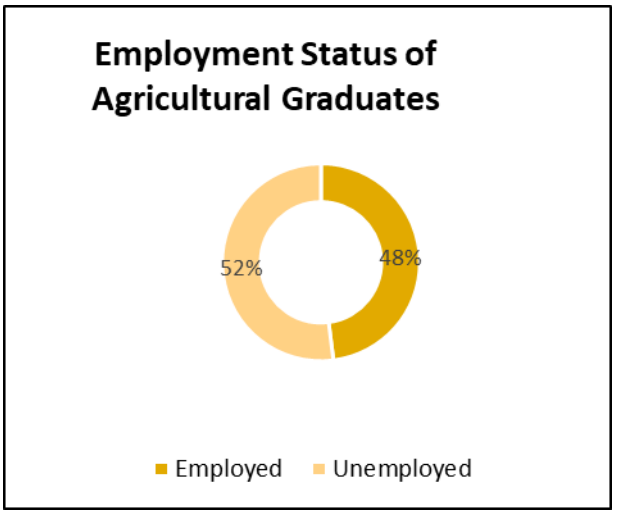
However, 84 % of agricultural graduates are employed and only 6 % become entrepreneurs. Therefore, greater pressure has been put on higher education by the higher education policy to produce quality graduates with entrepreneurial skills. However, it has repeatedly noted that the employability ratio of Sri Lankan graduates is far behind, compared to developed and even some of the developing countries.

Policy Background

Sri Lankan government has developed a national policy framework for the development of knowledge, skills and capabilities of their citizens. Its main aim is to create an environment which provides the youth and local entrepreneurs with novel opportunities, give new hope and sense of pride for all where they can use their skills and talents in order to become global leaders in any field of their favourite. Also, the Presidential Task Force (PTF) envisions that the current policy reforms may help to achieve the goal of reducing the population of unskilled labour to 10% by 2025. Incorporating soft skills development programmes in the undergraduate curricular has been a result of this move. Moreover, entrepreneurial skills development among graduates has identified most important for all disciplinary backgrounds. The state universities have initiated career guidance and entrepreneurial skills development programmes in their curricula with the guidance of University Grants Commission (UGC). However, the issue of agricultural graduates' unemployment is particularly challenging.

Approach and Results

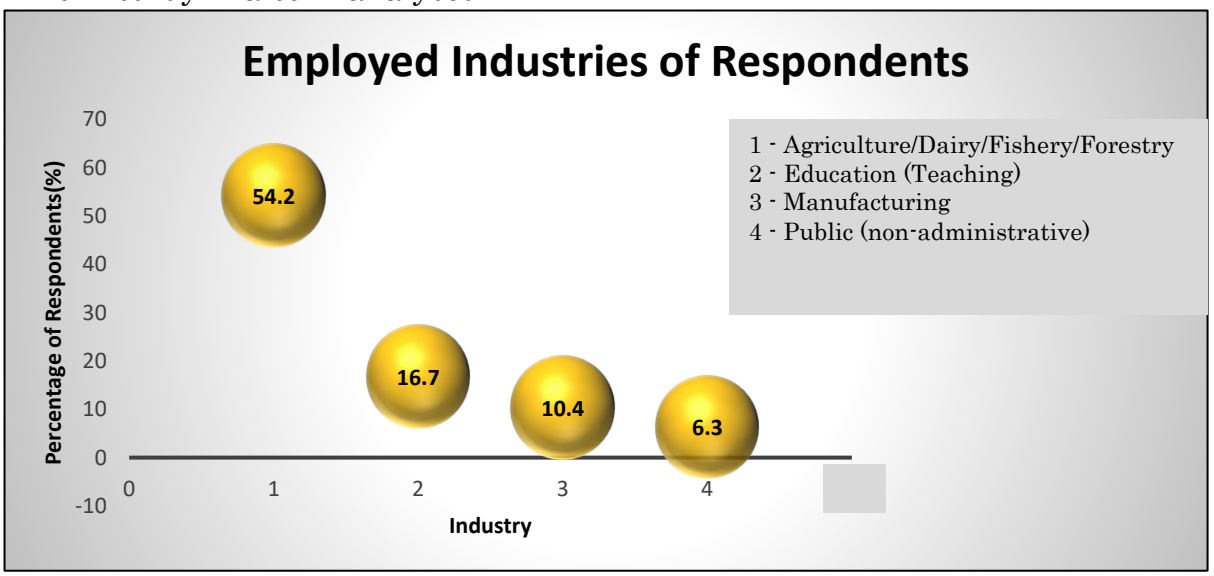
An online survey was administered among agricultural graduates who have graduated from the agricultural faculties in Sri Lanka and are in first two years of graduation. According to the results of the survey, only 48% of the graduates were able secure a job while 52% were unemployed.



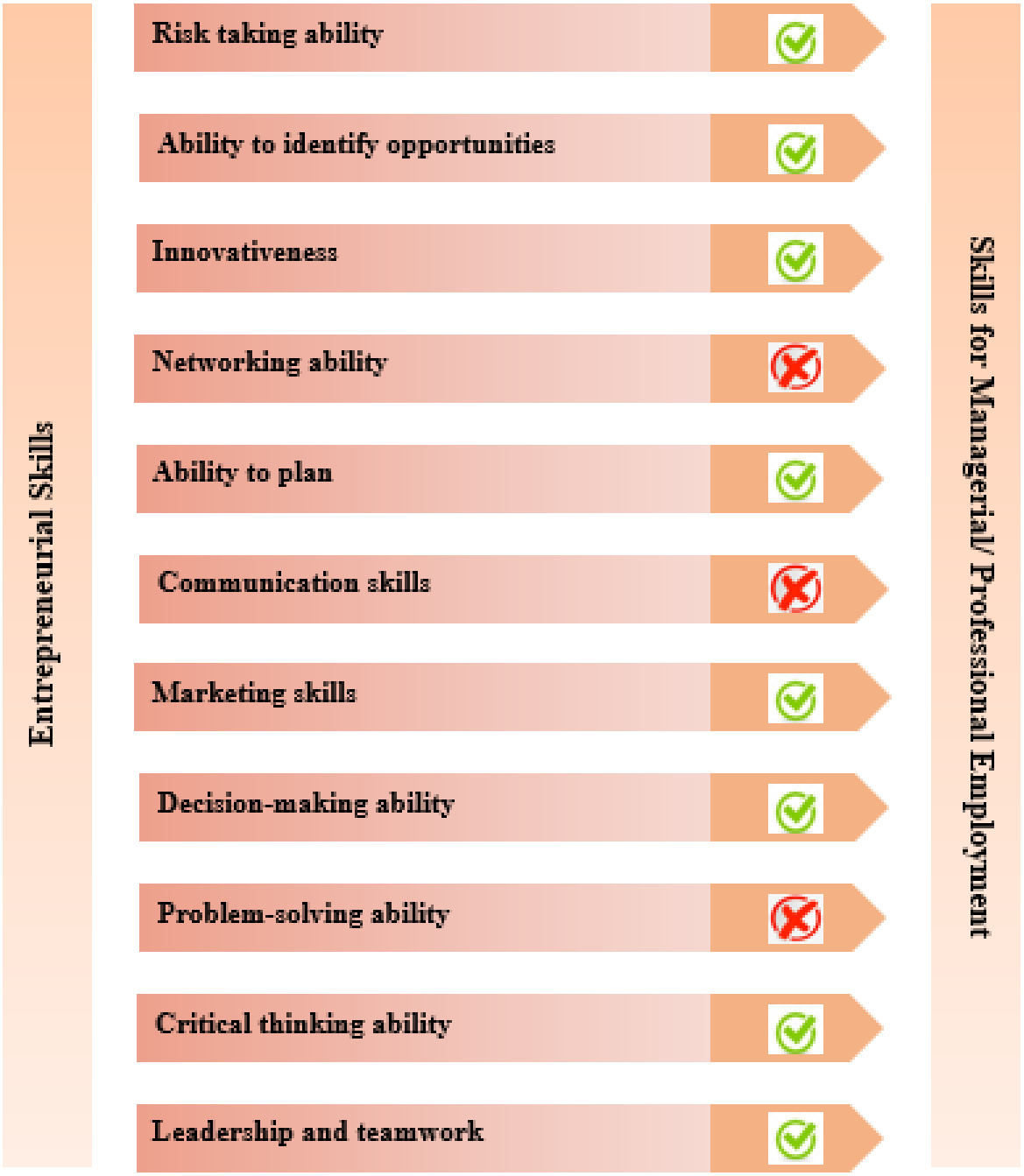
A 45% of the respondents strongly agreed that entrepreneurial skills are important for them to secure their employment. This study also found that a high percentage of respondents (54%) was engaged in the agriculture-related industry and followed by education industry (21%). However, slightly a half of the respondents (46%) were involved in the non-agriculture industry. This indicates that, about a half of the agricultural

graduates are employed in the industries in which their knowledge and skills are less related. Perhaps, this could be a result of the nature of agriculture degree programmes offered in the country which provides a wide scope of knowledge and skills.

inconsistency between this finding and the high rate of unemployment suggest that the observed high rate of unemployment could be a result of some other factors such as less opportunities in the job market or lack of capital to start self-employments. Further analysis of



This study also analysed 11 entrepreneurial skills; risk taking ability, ability to identify opportunities, innovativeness, networking ability, ability to plan, communication skills, marketing skills, decision-making ability, problem-solving ability, critical thinking ability, leadership and teamwork. According to the results, majority of the graduates demonstrated that they possess the entrepreneurial skills presented to them by the survey. The survey data revealed that leadership and team-working, innovativeness, ability to plan, risk-taking ability, decision-making ability, critical thinking, marketing skills, and ability to find opportunities have significantly contributed to find a managerial or professional job.

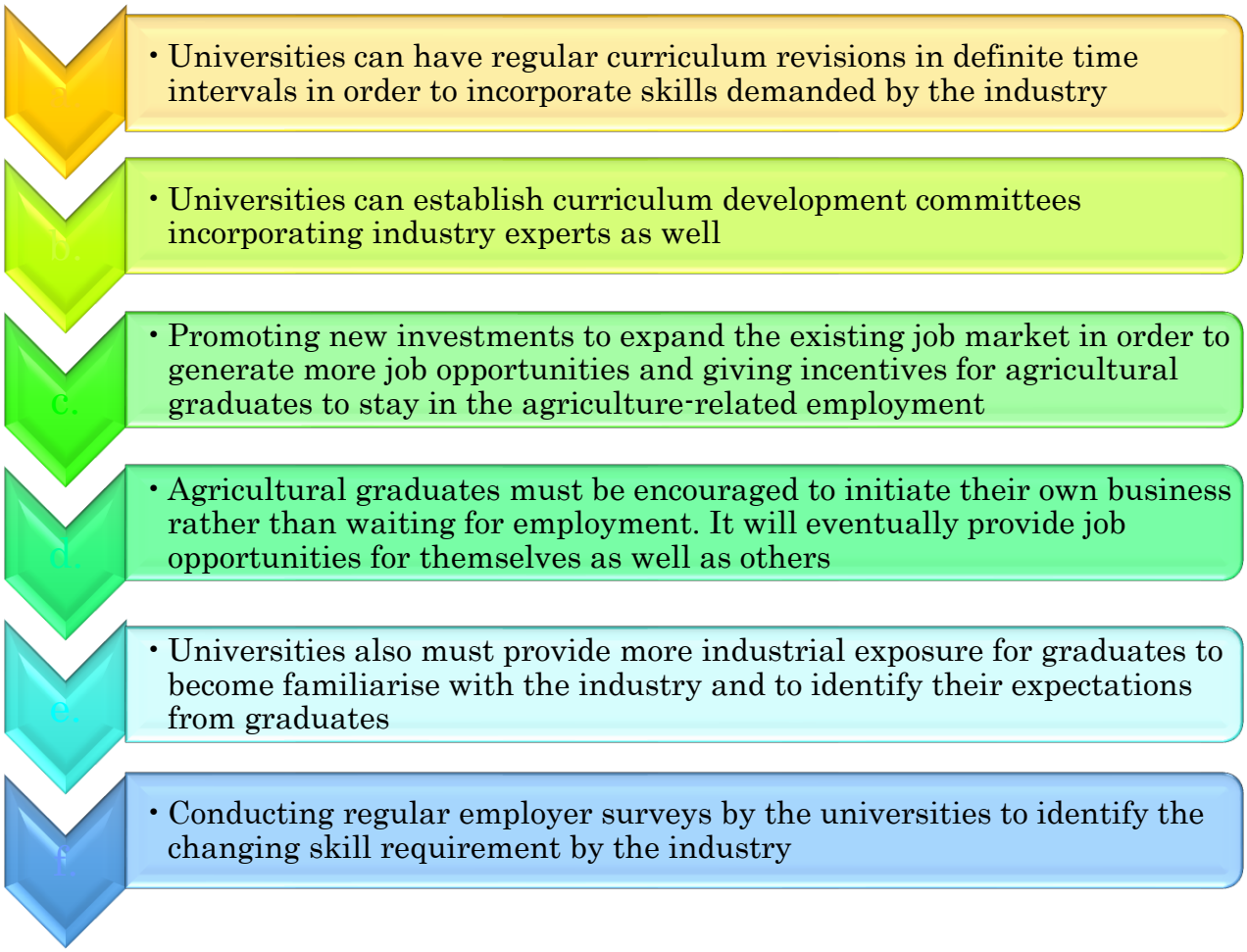


Conclusion

Even though the skills mismatch considered as the major reason for graduate unemployment, it's necessary to address this issue from a novel perspective. Because, many graduates have now identified the need of equipping several skills to secure their employment in the current job market. They are trying to

build their self-brand by adding more values to their career life. This study proves that the agricultural graduates are having enough competencies in performing entrepreneurial skills. However, employability depends on skills, understanding and attributes, external factors and other circumstances like the state of the labour market. Therefore, the reason for this high unemployment rate seems to be an external economic problem and it is not only a matter of skills mismatch. Moreover, the number of job opportunities available in the job market seems very low compared to the number of graduates who graduate each year. It discourages agricultural graduates to stay in the agricultural field and therefore, they move to other fields. This provides enough evidence that, many agricultural graduates involve in non-agriculture related employment.

This study also provides strong justification for the concept that there is a relationship between entrepreneurial skills and the type of employment. These finding emphasise the importance of addressing economic problems related to graduate unemployment by the policy makers.



Authors

1. Ms. K.R. Anupama
2. Dr. A.P.S. Fernando
3. Dr. (Mrs.) Kumudu P.P. Koppiyawattage
4. Dr. S. Jayasuriya

Department of Agricultural Systems
Faculty of Agriculture
Rajarata University of Sri Lanka
Puliyankulama
Anuradhapura
Sri Lanka

P: +94 25 223 5102
F: +94 25 223 5102
E: agrisystemsrusl@gmail.com
W: www.rjt.ac.lk/agri/systems

9 772815 010000