

HARTI



லார்கீக லார்கால
வருடாந்த அறீக்கை
ANNUAL REPORT

2020



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Hector Kobbekaduwa Agrarian Research and Training Institute

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ESTABLISHMENT

Hector Kobbekaduwa Agrarian Research and Training Institute (HARTI) originally established in 1972 under the Agrarian Research and Training Institute Act No. 05 of 1972 functions as a statutory body under the Ministry of Agriculture, mainly for the promoting policy-oriented research and addressing training needs of the agrarian and rural sector. Being a pioneer in agrarian research in the country, HARTI has a wealth of experience of over four decades in conducting socio-economic research and training and also providing information for formulating agrarian sector development policies since its establishment.

Mandate

Under the provisions of Section 3 (1) of the above Act, the general mandated objectives of the institute are as follows:

- i. To foster, assist, encourage and co-operate in agrarian research.
- ii. To co-ordinate agrarian research undertaken by government departments, local authorities, public corporations and other institutions.
- iii. To carry out investigations and research relating to institutional factors affecting the development of agriculture.
- iv. To undertake investigations, research and studies relating to economical use of land for agricultural purposes.
- v. To carry out socio-economic research relating to agricultural and rural development.
- vi. To provide, undertake and implement training activities and programmes relating to agrarian research either alone or in association with other institutions in Sri Lanka or abroad and to award diplomas, degrees, prizes and distinctions in connection therewith.
- vii. To sponsor and conduct conferences, seminars and workshops at local, regional and international levels.
- viii. To carry out such research relating to problems of agrarian structure in co-operation with Asian countries to serve their regional needs and provide a centre for the collection and dissemination of information on agrarian related issues.
- ix. To relate such research to problems connected with agrarian development and modernization with special reference to Sri Lanka and other Asian countries in general.

Vision

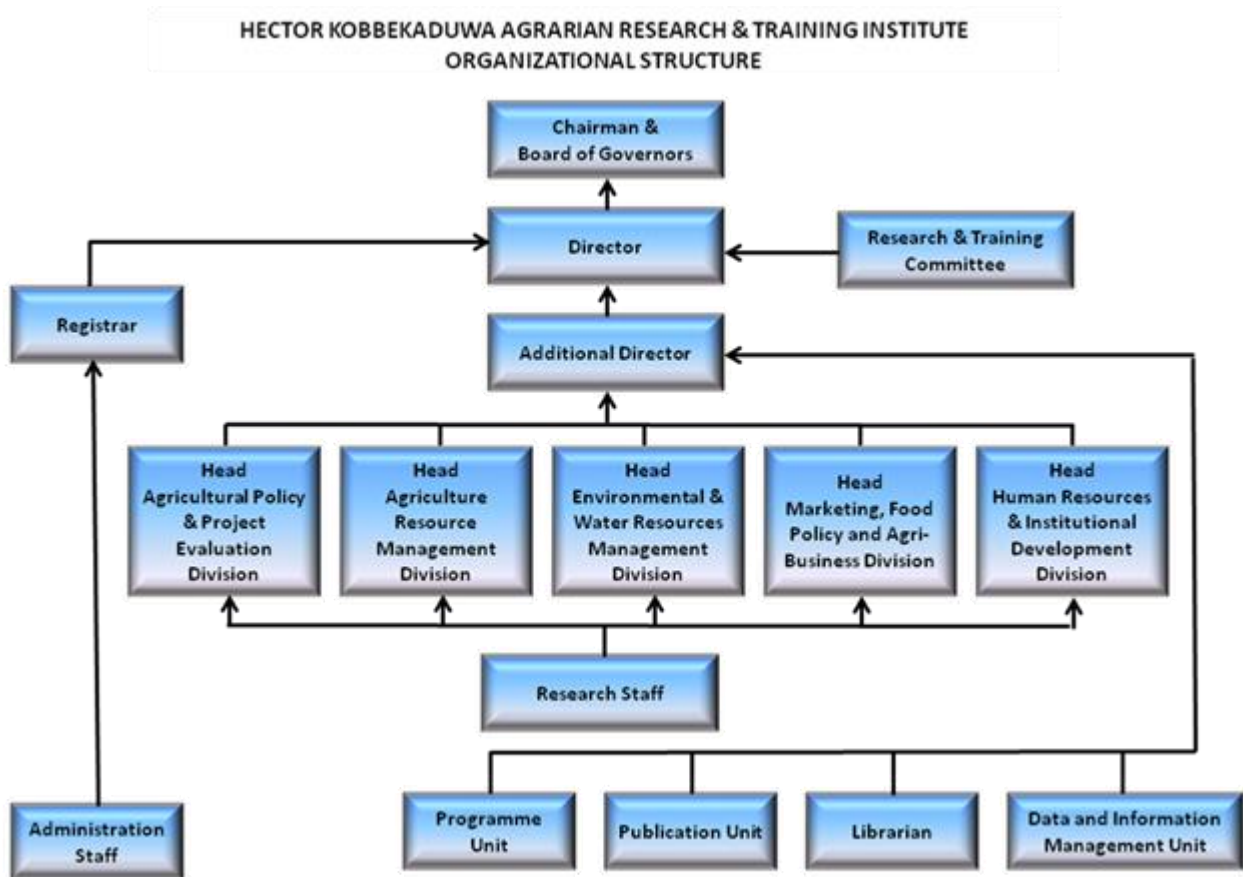
Be the leader in generating and disseminating knowledge for sustainable agrarian and rural development.

Mission

To strengthen agrarian and rural sector through conducting research and training activities

Goals

- i. To be a centre of excellence in socio-economic research in agrarian issues.
- ii. To liaise closely with planners and policymakers in the government and business and research communities.
- iii. To make the policy formulation and implementation process more effective through generation and timely dissemination of knowledge.
- iv. To keep the public informed by providing independent assessments on national policy issues.
- v. To strengthen the capacity for socio-economic policy analysis by investing in the capacities of its staff and the institute's knowledge base.
- vi. To increase the capacity of rural development stakeholders through training.



BOARD OF GOVERNORS – 2020

Mr. Neel Bandara Hapuhinna	-	}	Secretary, Ministry of Agriculture and Chairman of the Board of Governors
Mr. Sumedha Perera WWV RWP RSP USP NDU - Major General (Retired)	-		Secretary, Ministry of Agriculture and Chairman of the Board of Governors (From 26 th June 2020)
Senior Professor Ranjith Premalal De Silva	-		Director/CEO (From January 2020)
Dr. (Mrs.) P.W. Alahakoon	-Board Member-		Addl. Secretary (Agri. Dev) Ministry of Agriculture (Retired - June 2020)
Ms. R.A.D.R. Ranasinghe	-do-	-	Deputy Director Ministry of Finance, Economy and Policy Development (From February)
Mrs. Aruni S. Ranasinghe	-do-	-	Addl. Secretary (Admin) Ministry of Plantation Industries
Mrs. B.L.D. Balasuriya	-do-	-	Director of Education (Agriculture & Environmental) Ministry of Education (From April 2020)
Dr. Chandranath Amarasekara	-do-	-	Addl. Director Economic Research Department Central Bank of Sri Lanka (From February)
Dr. W.M.W. Weerakoon	-do-	-	Director General Dept. of Agriculture
Mrs. R.M.C.M. Herath	-do-	}	Land Commissioner General Dept. of Land Commissioner (From January to October 2020)
Mr. G.D. Keerthi Gamage	-do-		Land Commissioner General Dept. of Land Commissioner General's (From December 2020)

Mr. W.M.M.B. Weerasekera	-do-	-	Commissioner General Dept. of Agrarian Development
Mr. (Eng.) S. Mohanarajah	-do-	-	Director General of Irrigation Dept. of Irrigation (From January to May 2020)
Mr. (Eng) Nihal Siriwardana	-do-	-	Director General of Irrigation Department of Irrigation (From December 2020)
Mr. Suwinda S. Singappuli	-do-	-	Commissioner of Dept. of Co-operative Development and Registrar of Co- operative Societies Dept. of Co-operative Development
Mr. Xuebing Sun	-do-	-	FAO Representative Food and Agriculture Organization of the United Nations (From December 2020)
Professor D.K.N.G. Pushpakumara	-do-	-	Dean/Faculty of Agriculture University of Peradeniya (From December 2020)
Ms. Gilma Dahanayake	-do-	-	Addl. Secretary Ministry of Internal Trade, Food Security and Consumer Welfare
Mr. B.R.C. Bandara	-do-	-	Secretary, Board of Governors

Board of Governors Meetings - 2020

Date of the Meeting

No. of Members Attended

- | | |
|--|----|
| 1. 12 th March 2020 | 10 |
| 2. 15 th December 2020 (Zoom Meeting) | 08 |

Audit and Management Committee

- | | | |
|---------------------------------------|---|---|
| 1) Ms. R.A.D.R. Ranasinghe (Chairman) | - | Deputy Director
Development Finance Department
Ministry of Finance. |
| 2) Ms. Gilma Dahanayake (Member) | - | Addl. Secretary
Ministry of Internal Trade, Food
Security and Consumer Welfare. |
| 3) Ms. Aruni S. Ranasinghe (Member) | - | Additional Secretary
Ministry of Plantation Industries
and Export Agriculture. |
| 4) Ms. S.A.D.N. Perera (Observer) | - | Audit Superintendent
Auditor General's Department. |
| 5) Mr. U.S.L. Kumara (Observer) | - | Chief Internal Auditor
Ministry of Agriculture. |

Meetings of the Audit and Management Committee

Number of Meetings - 02

Date of the Meetings

18th June 2020

03rd September 2020

Overview

There are five divisions responsible for research and training activities of the Hector Kobbekaduwa Agrarian Research and Training Institute.

Agricultural Policy and Project Evaluation Division having conducted research to evaluate government policies implemented during last two decades in Sri Lanka has recommended agricultural policies that move away from market-distorting measures and blanket income transfers with the focus towards strategic investments that can help deliver sustainable productivity growth and increased climate resilience, thereby increasing income opportunities for farm households and reducing farmer migration. Another research of the division addressed on identifying fruit and vegetable consumption patterns, contributory factors and constraints and potentials for enhancing fruit and vegetable consumption, recommended to continue programmes and policies on public health and nutrition to improve fruits and vegetables consumption of the whole population. Ongoing research efforts of the division include assessing seed sector performance and its potentials to design strategies and policies for seed sector development in Sri Lanka, analyzing the current export performance, export potential and identifying factors inhibiting exportation to enhance the fruit export industry in Sri Lanka and identifying and analysing the prevailing development gaps of the potato sector in Sri Lanka.

Agricultural Resource Management Division, focusing on developing and testing community-based approaches to minimize the crop damages *via* early detection of pest and diseases by means of smart computing, participatory sensing and event detecting has recommended the government to encourage public and private enterprises to develop all types of communication infrastructure, jointly or collectively, to reach farmers while covering farming areas. The research activities that are in progress are identifying alternative strategies for intensified use of paddy lands in LCWZCDs and identifying the magnitude of crop damages and damage levels by wild animals and their island wide distribution.

Environment and Water Resource Management Division identifying water management issues in the climate vulnerable eastern slopes of central highland region has recommended institutional intervention to ensure fair distribution of water among different water users along the elevation. Another research conducted by the division analyzed the impact of Thattumaru and Kattimaru tenure system on the agricultural productivity aspects of paddy cultivation in wet zone areas of Sri Lanka, and recommended establishment of appropriate legal institutions to implement partitioning of lands and consolidation wherever necessary. Another research assessed the impact of awarding MIR contracts to FO's and achievement of its original objectives where awarding contracts to FO's without following competitive bidding procedure and recommended to hand over rehabilitation of minor irrigation schemes to FO's after considering its capacity (human/physical) by the agrarian officials in the area. An externally funded research study identified types of major irrigation systems applied by selected farming communities for specific crop varieties, the volume of water used by farmers for cultivating selected crops and energy consumption (including human labour) for irrigating selected crops in different irrigation systems and recommended conducting awareness programs for farmers on irrigation practices and meeting daily crop water requirement/s to become mindful about the advantages of irrigation, particularly RURALINVEST Training Program, which expects to help investors/investor groups to formulate agricultural business plans for small rural sector

investments. The ongoing research programs of the division include; identifying nationally important agricultural heritage systems of Sri Lanka, their applicability to improve modern agriculture systems, exploring farmer's perception, their acceptance and denial of land consolidation in the smallholder paddy farming sector of Sri Lanka to achieve broader agricultural and, rural development goals, examining the overall state of the functions of all stakeholders in main exotic vegetable value chains of Sri Lanka.

Marketing Food Policy and Agribusiness Division in 2020 mainly focused on examining the effectiveness of existing information-sharing tools/applications/systems for decision-making of vegetable growers in Sri Lanka and to understand factors/determinants leading to farmers' decision-making process in the vegetable production sector. The research recommended promotion of mobile hotlines for sharing information, reduction or removal of tax on selected vegetable seeds and providing fertilizer subsidy for vegetable growers. Another research conducted by the division elucidated the paddy/rice value chains by Value Chain Analysis (VCA) in Polonnaruwa district, which is the largest milling Zone in the country, and made recommendations at farm, collector and rice miller levels. In another research carried out by the division examined the issues impeding the expansion of OFC in third season and recommended establishing a proper mechanism to provide quality seed, taking measures to prevent crop damages from straying cattle, and establishing better coordination among Agrarian Services Centers, Irrigation Department and other relevant organizations. An externally funded research conducted by the division focused on increasing economic empowerment, social integration, resilience and peace building participation for conflict affected women in the Mullaitivu district and recommended establishment of collective marketing systems, marketing centers such as Dedicated Economic Centers and Pola Marketing. In addition a research has been carried out on Agriculture Market Information Service (AMIS) that has been functioning under Covid situation. The ongoing research studies of the division include; conducting a comprehensive value chain analysis of maize to provide recommendations for intervention and leverage areas, carrying out detailed VCA of the big onion in Sri Lanka and identifying major constraints and opportunities of production and marketing.

Human Resources and Institutional Development Division has engaged in training to enhance knowledge, attitude and skills of people involved in agrarian and rural development activities for improving the socio-economic standard of the farming community in Sri Lanka. The division has also conducted a research to identify the possibility of increasing coconut production through home gardens and providing recommendations for households and industries. An APP has been developed by Geographical Information System Unit of the division to create a link between suppliers and customers in agricultural product market and support services.

The other units, Statistics and Data Processing Division, Library and Publication Unit have provided routine supportive services to research activities of the Institution.

Senior Prof. Ranjith Premalal de Silva
Director

AGRICULTURAL POLICY AND PROJECT EVALUATION DIVISION

ON-GOING STUDIES

1. Evaluation of the Impact of Government Policies on Paddy Production in Sri Lanka

Mrs. Dilini Perera	- Coordinator
Dr. W.A. R. Wickramasinghe	- Co-researcher
Ms. A.K.A. Dissanayake	- Co-researcher
Mrs. U.D. R. Udari	- Co-researcher

Source of Funding: Consolidated Fund

Scope and Objectives of the Study:

Policy reforms of any kind usually bring about positive as well as adverse impacts on society depending on the economy and the characteristics of a population group. This study attempted to evaluate the national policies implemented during the last two decades in Sri Lanka with the intention of improving such policies to achieve self-sufficiency in rice in Sri Lanka.

Findings of the Study:

The policies related to paddy production are categorized as irrigation, paddy farming and diversification, land, fertilizer subsidy, irrigation subsidy, adaptation, research and development, paddy marketing and trade policies.

As revealed by the study the margins between retail price and the guaranteed price have been Rs. 1.26 and Rs. 1.52 on average for Nadu rice and Samba rice respectively during the past two years. This indicates that there is a possibility to increase the farm gate price in order to encourage production quantities by maintaining the same consumer utility levels. Producer Support Estimates (PSE) and Market Price Support (MPS) estimates have been negative indicating that the government policy instruments prevail in Sri Lanka induce a lower farm gate and domestic market price and thereby discouraging the commodity production. The Nominal Rate of Assistance (NRA) has a positive relationship with paddy yield, indicating that if the NRA for paddy increases in one year (more subsidization or less taxation) yield increases in the following year when the other variables are constant. Further, the study revealed that more access to information has a positive effect on yield and climate variables especially rainfall, which has a significant effect on paddy yield highlighting the need for more climate resilience policies for increasing the paddy production. Yield is positively affected when markets are better developed and when there is adequate access to information.

Recommendations

Agricultural policies that move away from market-distorting measures and blanket income transfers are recommended with the focus towards strategic investments that can help deliver sustainable productivity growth and increased climate resilience, thereby increasing income opportunities for farm households and reducing farmer migration. Further, developing policy instruments that assist and enhance farmers' capacity on adaptation to climate change especially rainfall variability are recommended.

2. Patterns and Determinants of Fruit and Vegetable Consumption in Sri Lanka

Research Team: Mrs. U.D.R. Udari - Coordinator
Ms. A.K.A. Dissanayake - Co-researcher
Mrs. Dilini Perera - Co-researcher
Dr. W.A. R. Wickramasinghe - Co-researcher

Source of Funding: Consolidated Fund

Scope and Objectives of the Study:

Sri Lanka's per capita fruit and vegetable (F&V) consumption remains far below the health recommendations. This study focused on identifying F&V consumption patterns, contributory factors and constraints and potentials for enhancing F&V consumption in order to formulate strategies to increase per capita F&V consumption.

Findings

It has been evident from the study that majority of the urban (69%) estate (69%) and rural (56%) households (HHs) totally depended on outsources for obtaining F&Vs. Urban HHs spend more than two fold for F&Vs compared to rural and estate. Quality and freshness have been the two most important attributes that affected purchasing of fresh F&Vs. Price, safety and seasonality have also been significant contributory factors affecting the F&V consumption.

The per capita fruit consumption varied across urban (187.78 g/day/person), rural (151.51 g/day/person) and estate (43.34g/day/person) HHs. The estimated per capita vegetable consumption has been 180.55 g/day/person in urban while 165.89 g/day/person and 108.38 g/day/person in estates and rural respectively.

Simpson Index Analysis has revealed that diversity of F&V consumption varied among HHs, urban being more (0.65) compared to rural (0.58) and estate (0.32) HHs. Consumption of vegetables has been more varied compared to fruits.

The linear regression analysis, HH size, gender, education level of the HH head, number of children, food habit, dwelling in urban area, access to F&V market have shown to effect on HH expenditure on F&Vs than the expenditure on other commodities.

Eight factors have been identified as potentials and barriers for F&V consumption from the Exploratory Factor Analysis. These are willingness to change, choice of F&V, awareness of recommendations, liking, health consciousness, difficulties, ease and perceived quality. These factors accounted for 69.83% of the total explained variation.

Majority of the HHs (75%) has not been aware on the National Food Guidelines, quantity and diversity of per-capita intakes. HHs less likely want to increase their F&V intake perceiving that their diet is healthy despite being less consistent with the accepted health recommendations.

Perception of chemical usage in fruit ripening, poor taste and high prices have been the most important factors that hindered HH fruit consumption while awareness, quality of the products, availability at home gardens, reasonable price and seasonal availability have been reported as motives for F&V intake.

Majority of the respondents (97%) perceived that F&Vs they purchased are not very safe and believed that they are contaminated with pesticide residues. This belief has negatively affected on majority of HHs (74%) F&V consumption and purchasing decisions. Non-availability, doubts on the product guarantee, lack of promotion and unclear declarations of the organic status have also been major barriers for reducing purchase of organic F&Vs.

Recommendations

Programmes and policies on public health and nutrition interventions should continue with the aim of improving the F&V consumption of the whole population. However, estate sector should be specifically targeted in such strategies as their F&V intakes are low in accordance with dietary recommendations.

The perception of chemical residues in F&V badly effects on F&V consumption and purchasing of HHs and hence it is important for relevant government authorities to make people aware on the trustworthiness of their beliefs by providing actual facts and figures.

There is a potentially viable market for safer F&Vs. Therefore, all efforts should be made to promote production, certification and sale of safe F&Vs. National legislation for reputable organic certification is likely to build a greater trust in organic F&Vs in the local market.

Home gardens (HGs) are a potential way to increase production and consumption of F&Vs in the rural sector. However, limitations of HHs to meet their F&V demand from HGs have to be recognized and actions should be taken to assure quality of F&Vs available at markets.

3. Seed Sector in Sri Lanka: Performance, Potentials, and Strategies to Way Forward

Research Team:	Mrs. U.D.R. Udari	- Coordinator
	Mr. I.P.M. Wijesinghe	- Co-researcher
	Ms. A.K.A. Dissanayake	- Co-researcher
	Mrs. M.D.D. Perera	- Co-researcher
	Mr. S.P. Fernando	- Co-researcher

Source of Funding: Consolidated Fund

Scope and Objectives of the Study:

Food security heavily depends on the seed security of the farming community as seeds are fundamentally important for production and improvement of agricultural crops. However, inadequate supply of quality seeds is a major factor contributing to the slow growth rate in the agricultural sector and attention should be paid for research and extension services to supply better quality seeds. The national policy on agriculture has also strongly recognized the need for developing seed sector in order to accelerate the development of the agriculture sector to achieve national goals of food security and improving the livelihood of farmers. Hence, this study intends to explore the seed sector in Sri Lanka with the emphasis on rice, maize, potato, big onion and several vegetable crops by highlighting seed sector performance, growth trends and its potentials. Findings of this study will diagnose underlying system challenges by identifying where performance is lacking and untapped potentials which will be of value for management and investment decisions and provide strategies and policy options which create enabling environments for competitive seed systems to address food security and social welfare.

General Objective:

To assess seed sector performance and its potentials to design strategies and policies for developing the seed sector in Sri Lanka.

Specific Objectives:

- To examine growth trends of the seed sector
- To assess the performance of seed sector in Sri Lanka
- To identify potentials and barriers with respect to seed sector development in Sri Lanka

Current Progress:

The research proposal has been presented to the Research and Training Committee. The study is expected to be completed in 2022.

4. Export Potentiality of Major Fruits of Sri Lanka: An Economic Analysis

Research Team:	Ms. A.K.A. Dissanayake	- Coordinator
	Mrs. Dilini Perera	- Co-researcher
	Mrs. U.D. R. Udari	- Co-researcher
	Mrs. G.V.N. Aiome	- Co-researcher

Source of Funding: Consolidated Fund

Scope and Objectives of the Study:

Comparing to other countries in the region the fruit sector in Sri Lanka has a good potential for vast development due to the ideal climatic conditions and fertile soils in the country. For instance, some of the tropical fruits in Sri Lanka such as pineapple, rambutan, mangosteen and passion fruit are very popular among other countries in the world due to their unique characteristics flavour, aroma and colour. With the recognition of proper market niche, Sri Lanka has a great potential to develop exports in fresh and processed fruits. Therefore, scientific research needs to be carried out to investigate underlying reasons for market changes and potential niche markets. Results of this study could be of value for policy makers and various stakeholders for identifying the untapped potential for Sri Lankan fruits in the world market and integrating into global market offers, the potential for growth of fruit exports in Sri Lanka and poverty reduction.

General Objective

To analyze the current export performance, export potential and identify factors inhibiting exportation in order to recommend policy measures to enhance the fruit export industry in Sri Lanka.

Specific objectives

- To examine the characteristics and structure of the fruit export sector.
- To identify the most potential major fruit crops in Sri Lanka.
- To analyze the growth pattern and the direction of trade of Sri Lankan fruit exports.
- To identify the potentials and challenges for fruit export marketing channel actors.

Current Progress:

The study proposal has been presented to Research and Training Committee and this research will be completed in year 2022.

5. Analysis of Potato Value Chain in Sri Lanka

Research Team:	Mrs. Rasika Wijesinghe	- Co-coordinator
	Mr. Prasanna Wijesinghe	- Co-researcher
	Mrs. Dilupa Bamunuarachchi	- Co-researcher

Source of Funding: Consolidated Fund

Scope and Objectives:

Potato has been cultivated in Sri Lanka for more than a century which emerged as one of the most important food crops in Sri Lanka, mainly for its high consumer preference and high net return. Further potato can both be used as a staple food crop for household consumption and food security as well as a cash crop. On the other hand, sustainability of the sub sector, has always been an important aspect of the Sri Lankan government's agriculture policies addressing food security and political and socio economic aspects. Therefore, potato is a heavily debated commodity in Sri Lanka in every budget statement since it is directly linked to import substitution policies. Having identifying these importance, potato has been identified in the new government's national policy framework, "Vistas of Prosperity and Splendour" as an important crop among the other field crops (OFC) category for promoting production and cultivation. Therefore, it is important to conduct a detail value chain analysis to help the actors in the potato value chain to make informed choices, including those who support its policy makers and donors. It also helps to identify weaknesses that retard progress and suggest actions for its improvement. Further it helps to formulate policies and making decisions to uplift the potato cultivation in Sri Lanka. The primary objective of the study is to identify and analyse the prevailing development gaps of the potato sector in Sri Lanka using a value chain approach so as to propose remedial actions for the development of this sector. The specific objectives are;

1. To identify and map potato the value chain and the associated actors
2. To assess economic performance actors along the potato value chain
3. To identify key system constraints and opportunities prevailing in potato value chains
4. To suggest actions and policy recommendations to improve the value chain in order to uplift the potato cultivation in Sri Lanka.

Current Progress

The proposal of the study has been presented to the Research and Training Committee and the study is expected to be completed by March, 2022.

AGRICULTURAL RESOURCE MANAGEMENT DIVISION

ON-GOING STUDIES

1. User-centric Mobile Based Solution for Pest and Disease Management in Food Crops Sector

This is a Collaborative Research Project with the participation of Hector Kobbekaduwa Agrarian Research and Training Institute (HARTI), Western Sydney University (WSU) and Department of Agriculture (DOA)

Research Team:

Mrs. Rifana Buhary	- Coordinator
Mrs. Renuka Weerakkody	- Co-researcher
Mrs. Thushara Dharmawardhana	- Co-researcher
Mr. Amal Dissanayake	- Co-researcher
Mr. Virajith Kuruppu	- Co-researcher

Source of Funding: Consolidated Fund

Scope and Objectives:

The flow of information to farmers for managing pests and diseases (P&D) is fraught with various shortcomings. Farmers have limited access to reliable information when they are mostly in need, in a comprehensible format and in an understandable language to deter P&D occurrences, when they are developed into outbreaks and what prevention and/or control measures need to be taken in such events. Taken together, these can be considered as a coordination failure. Lack of real-time information with the farming community has led to intense crop losses and thus P&D has become a major problem faced by the farming community. Given the situation, the main objective of carrying out this project was to develop and test community-based approaches to minimize the crop damages *via* early detection of pest and diseases by means of smart computing, participatory sensing and event detection. The mobile-based application titled ‘Ladybird’ was developed to deploy among the paddy farmers in Kurunegala, Matara and Polonnaruwa districts.

Findings and Recommendations

1. The baseline survey revealed many weaknesses related to pest and disease management in paddy cultivation. These include poor adoption of recommended cultural practices, poor diagnosis of P&D events, insufficient knowledge on P&D management, heavy dependence on chemical control methods and unconfirmed sources in P&D management, improper selection, overuse and misuse of pesticides, and delays in receiving extension information. ‘Ladybird’ is an all-inclusive solution to these multiple

issues. Farmers also perceive that pests and diseases are the main cause of crop losses in paddy cultivation and have realized that the contribution of the Ladybird application with real-time information on pest and disease management is enormous.

2. As revealed in the post evaluation, this mobile application has been useful and attractive to sampled-farmers in many ways. Choosing correct pesticides (53%); following pesticide recommendations (49%); user-friendliness (72%); using knowledge practically at the correct context (76%); strengthening real-time link between farmer and the agricultural instructor (AI) as AI diagnoses the P&D events and recommends control measures with minimal diagnostic errors and avoiding misuse of agrochemicals (85%).
3. As further revealed in the post evaluation, 90% of the sampled paddy farmers identified P&Ds through the mobile solution, while 45%t of them sought solutions through the mobile application. Farmers below 40 years reported P&D events through mobile application are higher than the older farmers. This underscores the importance of information technology in attracting young people to agriculture.
4. However, there are a number of factors that hinder the use of an all-inclusive application such as Ladybird by the farming community, which needs improvement. Despite the high prevalence of mobile telephones among the country's population, paddy farmers use mobile phones of basic versions incompatible with advanced mobile solutions. Poor signal strength in farming areas and lack of internet facilities remain as major obstacles. Therefore, introducing mobile applications without improving the connectivity is ineffective. Improved connectivity with farming areas and farmers is a basic requirement for achieving the expectations of the digitization of agriculture. Hence, the government should encourage public and private enterprises to develop all types of communication infrastructure, jointly or collectively, to reach farmers by covering farming areas.
5. Furthermore, the environment of the agrarian service centers (ASC) is not conducive to adding a reasonable value to the farm household through mobile applications. Therefore, ASCs need to be transformed into resourceful e-landscapes where officials with extension and ICT capabilities constantly meet the information needs of farmers in real time.
6. Farmers are also technically less empowered to take advantages of mobile solutions. Therefore, agricultural extension service has a role to play for familiarizing the farming community to use e-solutions. For instance, assisting farmers' organizations to empower their members to use of ICT and to address farming-related issues at the community level.

2. Strategies for Intensified Use of Paddy Lands in Low Country Wet Zone Coastal Districts (LCWZCDs) in Sri Lanka

Research Team:

Mrs. Renuka Weerakkody	- Coordinator
Mrs. Rifana Buhary	- Co-researcher
Mrs. Thushara Dharmawardhana	- Co-researcher
Mrs. Dinusha Rathnayaka	- Co-researcher

Source of Funding: Consolidated Fund

Scope and Objectives:

Main objective: Identify alternative strategies for intensified use of paddy lands in LCWZCDs.

Specific Objectives:

To identify strategies

1. To prevent further abandoning of active paddy lands in LCWZCDs.
2. To improve the effectiveness of re-cultivation programs of abandoned paddy lands to increase the sown and asweddumized extents in LCWZCDs.
3. To improve the performances of other agricultural activities carried out in abandoned paddy lands and to encourage farmers to re-cultivate paddy in the abandoned paddy lands currently used for other agricultural purposes.

Current Progress:

Literature review and proposal development has been in progress.

Expected outcome:

The study will contribute to policy formulation through identifying strategies to detain further degradation of paddy lands in eco systems of LCWZCDs.

3. Crop and harvest losses caused by Wildlife Damage in Sri Lanka

Research Team:	Mr. Amal Dissanayake	- Coordinator
	Mrs. Renuka Weerakkody	- Co-researcher
	Mr. Virajith Kuruppu	- Co-researcher
	Mr. Sangeeth Fernando	- Co-researcher
	Mrs. Thushara Dharmawardhana	- Co-researcher
	Mrs. Dinusha Rathnayake	- Co-researcher
	Mrs. Rifana Buhary	- Co-researcher

Source of Funding: Consolidated Fund

Scope and Objectives

The wildlife damages in the agricultural sector have become one of the most prominent social issues in the rural agrarian sector of Sri Lanka. It has led to the Human-Wildlife Conflict (HWC) which causes many deaths and casualties to both human and wild animals in addition to the notable degree of crop damage. This study has been outlined in the cabinet paper No. 19/1796/118/082 on 20.06.2019 under the caption 'Formulation of a sustainable programme to minimize the damages caused by wild animals to the cultivations in agricultural areas' by the Ministry of Agriculture (MoA) as a responsibility of HARTI. The special committee has been appointed by the minister of agriculture on instructions of the presidential secretariat in 2018 to identify possible solutions to manage the agricultural crop damage by wildlife. Accordingly, the committee advised the Department of Wildlife Conservation (DWC) to elaborate a Wildlife Acceptance Capacity (WAC) programme to maintain an optimal population balance in the wild animals and revise the conservation list of wildlife. However, DWC informed that this would be a highly time-consuming process which will require about 10 years. Therefore, an agreement was reached to revise the list of conserved animals based on an island-wide identification of crop damages by wildlife. In view of this situation this has been designed to identify the magnitude of crop damages, damage levels by wild animals and its distribution through the Island. Accordingly, this study mainly aims to facilitate the revising process of the list of conserved animals' in order to minimize the farmer oriented legal issues in crop guarding activities. This extensive study was expected be conducted as a collaborative project with the participation of HARTI and MoA and line ministries, departments and institutes such as DWC, Ministry of Higher Education, Department of Agrarian Development, Department of Agriculture, Department of Census and Statistics and leading universities around the country. The study would be mainly funded by MoA with a limited contribution from HARTI amounting Rs. one million.

Current Progress

The proposal has been completed and submitted to the committee appointed by MoA for comments.

ENVIRONMENT AND WATER RESOURCE MANAGEMENT DIVISION

ON-GOING STUDIES

1. Water Management Issues in Eastern Slopes of Central Highland Region

Research Team: Mr. W.H.A. Shantha	- Coordinator
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Source of Funding: Consolidated fund

Scope and Objectives:

Absence of an institutional set up to regulate water allocation among different users and to resolve disputes and conflicts on water resources has been identified as a major reason for increasing water disputes in the climate vulnerable eastern slopes of the central highland region. The present study conducted in three water schemes in the dry zone area attempted to signify the requirement of a proper institutional arrangement for water conflict resolution while establishing a mechanism for fair allocation of water among different users. Further the study expected to reveal the importance of applying participatory irrigation/water management concepts and practices and strengthening of existing system/s (if any) and formulating sustainable mechanism, agreeable by different stakeholders, for allocation of limited water resources among diverse users in the region

Research Objective

Primary objective of this research is to identify the water management issues in the climate vulnerable eastern slopes of central highland region and to propose a sustainable mechanism for allocation of water among different user groups.

Specific Objectives:

The specific objectives of the study are:

- to identify the different water user groups with different interests
- to assess the expansion/decline of land extent in different crop production systems
- to examine the impact of water shortage on livelihood and household food security of disadvantaged water user group/s and to derive a sustainable water allocation mechanism acceptable for different stakeholders.

Findings and Recommendations

There are a large number of users of the water resources of the river namely, large-scale vegetable cultivators in the most upper parts (close to the Pidurutalagala forest reserve) of the basin, domestic water users living in tea estates in upper elevations, Estate workers cultivating vegetables and cash crops in encroached reservations of water streams and tributaries, hydro-electricity generation through mini-hydro power stations, formal drinking water distribution by the National Water Supply and Drainage Board, agricultural irrigation water supplied by the Department of Irrigation, paddy and subsidiary crop cultivators under minor irrigation systems (anicuts and small diversion) in the lower elevations.

The extent of paddy, vegetable and other subsidiary crop cultivation in lower elevations is showing a significantly decreasing trend while the extent of vegetable and cash crop cultivation in encroached stream reservations in tea estates and most upper elevations are continuously increasing.

A considerable proportion of paddy lands in the low elevations have been abandoned due to water shortage aggravated by the high water use in upper elevations threatening the agriculture-based livelihoods and food security of the families in the vulnerable areas.

An institutional intervention should be made for fair distribution of water among the different water users along the elevation.

2. Effects of present traditional land tenure system (Thattu – maru and Katti – maru) on agricultural productivity in the wet zone of Sri Lanka- (R 555)

Research Team:	Mrs. T.P. Munaweera	- Coordinator
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	Mr. M.A.C.S. Bandara	- Co-researcher

Source of Funding: Consolidated fund

Scope and Objectives:

Thattumaru-Kattimaruru is a regional phenomenon mostly found in low and mid-country wet zone paddy lands. This has not been studied in detail to find its origin, history, operation and consequences. Therefore, the focus of this study is to examine the impacts of Thattumaruru and Kattimaruru tenure system in terms of productivity aspects of the paddy lands in wet zone areas of Sri Lanka and to highlight the extent of this problem while seeking possible solutions to overcome the problems confronted.

Objective of the Study

The primary objective of this study is to analyze the impact of Thattumaruru and Kattimaruru tenure system on the agricultural productivity of paddy cultivation in wet zone areas of Sri Lanka.

Specific Objectives

- To identify the characteristic features of Thattumaru and Kattimaru tenure system and find how and to what extent the Thattumaru and Kattimaru tenure system has affected the agricultural productivity
- To trace the attitude of the peasantry towards this system in the existing agricultural/agrarian set up and to seek remedial measures leading to the solution of the productivity problem associated with particular land tenure system

Findings and Conclusions

Demographic characteristics highlighted that majority of the farmers are elders and not practicing paddy cultivation as primary income source and further that involvement of youth in paddy farming is limited emphasizing the danger of more land abandonment in future.

Unit cost of production including imputed cost is higher than farm-gate price in all three districts and breakdown of the total cost indicate that more than 50% of the expenses has allocated for labour followed by power and material. Even though land ownership status has created some insecurity and hinders land improvement and maintenance, main reason for not cultivating paddy lands in studied areas was the uneconomical nature of the production.

Recommendations

Thattumaru-Kattimaru system is a complex land ownership phenomenon and has become arduous with its uneconomical nature of production hence the solution to this issue has to come as a package of remedies. Consideration should be given to restore the fast disappearing system by establishing appropriate legal institutions to implement partitioning and consolidation of lands wherever it is necessary.

3. Assessment of Awarding Minor Irrigation Rehabilitation (MIR) Contracts to Farmer Organizations: Analyze Impacts for Sustainable Minor Irrigation Development in Sri Lanka

Research Team:	Mr. M.A.C.S. Bandara	- Coordinator
	Mrs. M.T. Padmajani	- Co-researcher
	Mr. W.H.A. Shantha	- Co-researcher
	Mrs. G.G. de L.W. Samarasingha	- Co-researcher

Source of Funding: HARTI Consolidated funds

Scope and Objectives:

Awarding MIR contracts to farmer organizations (FO) was initiated with the circular issued under MNPEA 3/2003. The MIR contracts that were given to FO's were initially limited to Rs. two million and later amended by circular MNPEA 3/2016 increasing up to Rs. five million. The above circular expected to achieve two objectives; primarily to rehabilitate minor irrigation systems and ancillary to maintain the system sustainability by providing FO's a sense of ownership, technological skills, more financial capability and assurance of physical work without seeking financial gain and community mobilization towards system health and sustainability.

This study was designed to provide answers to two basic questions related to the above program as; whether the Department of Agrarian Development (DAD) was able to achieve its objectives of awarding contracts of Minor Irrigation Rehabilitation (MIR) to Farmer Organizations (FO) without following a competitive bidding procedure? Whether the awarding of MIR contracts to FOs without following competitive bidding system is sustainable? Studying these impacts of MIR through FO was expected to give insights to the DAD to revisit the circular and make necessary amendments towards sustainability of minor irrigation systems in Sri Lanka.

Research Objectives:

The main objective of the study was to assess the impact of awarding MIR contracts to FO's and achieving its original objectives where awarding contracts to FO's without following competitive bidding procedure.

Specific Objectives are

- To assess the institutional strength, capacities and weaknesses of farmer organizations in relation to MIR
- To assess the overall quality of rehabilitation work, fulfilling farmers' needs, and farmer participation in rehabilitation process
- To assess the impacts of rehabilitation of irrigation schemes on livelihoods of farmers and development of the capacities of the FO's
- To assess the creation of a sense of ownership, responsibility and accountability of the FO's (farmers) by governing the irrigation rehabilitations works by themselves
- To review the procedure of awarding contracts to FO's for more sustainable and effective MIR

After consultation with Department of Agrarian Development, 40 randomly selected MIR projects which were implemented during last five years (20015-2019) in five districts; Kurunegala, Anuradhapura, Nuwara Eliya, Badulla and Vavuniya were selected for the field survey.

Findings

- Most of the rehabilitation contracts undertaken by the farmer organizations have been successful though meeting the expectations of the beneficiaries was at various levels.
- Farmer organizations that were functioning well with active office bearers have reaped maximum benefits from the funds allocated for the rehabilitation work
- Farmers have benefited more in the event when rehabilitation work was carried out by their own farmer organization or nearby other FO, than by an outside contractor.

Recommendations

- Minor irrigation rehabilitation of this nature should be handed over to FO's after considering its capacity (human/physical) by the agrarian officials in the area.

In the event the respective FO doesn't have the capacity to undertake the rehabilitation work, it is more appropriate to consider another nearby FO to contract the project.

4. Nationally Important Agricultural Heritage Systems: Recognition, Applicability, and Conservation

Research Team:	Ms. J.A.U.P. Jayasinghe	- Coordinator
	Mrs. R.M.M.H.K. Rambodagedara	- Co-researcher
	Mrs. R.D. Wijesinghe	- Co-researcher

Source of Funding: Consolidated fund

Scope and Objectives:

The concept "Nationally Important Agricultural Heritage Systems (NIAHS)" is a novel concept proposed by Department of Agrarian Development in year 2019. This concept was initiated based on the concept "Globally Important Agricultural Heritage Systems" of Food and Agriculture Organization of United Nations. NIAHS of Sri Lanka can be described as rich, sustainable, indigenous and ingenious agricultural knowledge systems which innate from generation to generation by successfully adapting to diverse environmental, climatic, social and economic variations over the time. Since these systems had the ability to ensure food and livelihood security, despite climatic, cultural and socio-economic upheavals, scientists suggest that the knowledge embedded in these systems have the ability to provide a strong base to develop new agricultural models to withstand unpredictable changes happening at present in the midst of climate change, energy and economic crisis.

However, with the rapid evolution of commercial intensive agriculture, these systems have been dying out even without identifying their scientific base and possibility of using them as a favorable base to develop sustainable modern agriculture systems. At present in Sri Lanka there is no national policy and mechanism to define, recognize, collect and conserve these systems. Identifying the timely importance of this issue the Department of Agrarian Development requested HARTI to study the effects of agricultural heritage systems on the sustainability of rural agriculture in Sri Lanka. Hence this study aims to identify nationally important agriculture systems of Sri Lanka, their applicability and conservation.

Objectives

The overall objective of this study is to identify nationally important agricultural heritage systems of Sri Lanka, their applicability to improve modern agriculture systems and to suggest ways to conserve them.

Specific Objectives

- To develop a classification system using an appropriate selection criterion to identify nationally important agricultural heritage systems.
- To develop a system to identify, collect and store nationally important agricultural heritage systems.
- To identify the applicability of nationally important agricultural heritage systems to improve the productivity, resilience and sustainability of modern agriculture systems.
- To provide policy guidance to develop a national policy towards conserving agricultural heritage systems in Sri Lanka.

Current Progress

After careful analysis of literature, to analyze Nationally Important agricultural heritage systems, a social-ecological systems model was chosen. The system components are analyzing applying principles of complex adaptive systems model and conducting panel discussions with subject experts based on the framework selected.

5. Land consolidation in Smallholder Paddy Farming Sector of the Dry Zone: Farmer Perception and Level of Acceptance

Research Team: Mrs. R.M.M.H.K. Rambodagedara - Coordinator
Ms. J.A.U.P. Jayasinghe - Co-researcher
Mr. I.P.P.M. Wijesinghe - Co-researcher

Source of Funding: Consolidated fund

Scope and Objectives:

At present, Sri Lanka is experiencing serious issues regarding the agricultural land use, in particular in the smallholder paddy farming sector. This demands the need for developing sensible policy measures for efficient and sustainable land use practices. Land consolidation (LC) is often identified as a promising strategy to provide a robust solution to minimize existing drawbacks of agricultural land resource management, which is essential for making agricultural lands more economically viable and efficient. Due to this importance, implementation of LC has been in serious policy discussions over a long period in Sri Lanka. Yet, it is often accepted that policy itself is difficult to implement land consolidation programs in effective manner since stakeholder participation is essential for such programs. Hence identifying farmers' perception and their acceptance on land consolidation provides a good pathway to design, and implement land consolidation initiatives, and to reduce conflicting situations that can arise in the grass root scenarios. Thus, this study was designed to explore the farmer's perception, their acceptance and denial of land consolidation in the smallholder paddy farming sector of Sri Lanka to achieve broader agricultural and rural development goals.

Specific Objectives:

- To investigate to what extent land policies are favorable for land consolidation, and identify possible scenarios to implement land consolidation among smallholder paddy farmers
- To identify farmers' perceptions on land consolidation and level of acceptance for land consolidation
- To investigate the major determinants for farmers' acceptance or denial of land consolidation
- To explore possible strategies to enhance farmers' willingness and acceptance for implementation of land consolidation under different scenarios.

Current Progress

The target population of this study was identified as smallholder lowland farmers representing major paddy farming districts in the Dry zone of Sri Lanka. The research proposal has been presented to the Research and Training Committee. The relevant variables to collect qualitative and quantitative data have been identified.

6. Production and Marketing Performances of Selected Vegetable Crops from Farm to Plate

Research Team:	Mrs. G.G. de L.W. Samarasingha	- Coordinator
	Mrs. M.T. Padmajani	- Co-researcher
	Mr. W.H.A. Shantha	- Co-researcher
	Mr. M.A.C.S. Bandara	- Co-researcher

Source of Funding: HARTI Consolidated fund

Scope and Objectives

Vegetable cultivation is one of the most important segments of agricultural production in Sri Lanka. The efficient and sustainable functioning of the vegetable production sub-sector is a major concern of the agricultural policy of the government in view of socio-economic and political aspects since there are a considerable number of farm households engaged in the vegetable production sub-sector as well as a consumer commodity ensuring food and nutrient security of the entire country's population. However, there is ample evidence to show that there are many issues in vegetable production and marketing systems which mainly reflect through fluctuating farm gate and retail prices.

If farmers were to receive high profits while consumers were to enjoy fair price, and the national food security was to be assured, the chain of food system had to be systematically made strong, efficient, healthy and dynamic. Understanding value chains, its actors and implications are critical to achieve a win-win situation to both producers as well as the consumers. However, studies on proper vegetable value chain analysis by taking into account all the actors of the chain are scarce in the scientific literature. Therefore, it is important to conduct a comprehensive value chain analysis to identify issues, weaknesses that prevent progress and potentials at each step of the value chain starting from input supplier to final consumer to make a more efficient product flow.

Main Objective:

The main objective of the study is to examine the overall state of the functions of all stakeholders in main exotic vegetable value chains existing in the country.

Specific Objectives:

- To identify the existing value chains of selected exotic vegetables
- To identify stakeholders of identified vegetable value chains and assess their performance
- To analyze the margins and profits associated with each step/node along the chain

- To identify constraints faced by each stakeholder of each vegetable value chain and the potentials to develop the vegetable sector

Current Progress

Draft research proposal was improved by incorporating the comments received at the Study Circle seminar. Secondary data and information were collected through key informant discussions and published as well as unpublished literature. Checklists have been prepared to interview different actors along the value chains.

EXTERNALLY FUNDED PROJECTS (COMPLETED)

1. The Water/Energy Baseline Assessment for Micro Irrigation Technologies for Selected Crop Varieties in Sri Lanka- (CR 559)

Research Team:	Mr. W.H.A. Shantha	- Co-researcher
	Mr. M.A.C.S. Bandara	- Coordinator
	Mrs. M.T. Padmajani	- Co-researcher
	Mr. W.A.N. Wijesooriya	- Co-researcher
	Mr. R.A.C.J. Perera	- Co-researcher

Source of Funding: World Food Programme

Time Period: September 2019 – January 2020

Scope and Objectives:

The conventional types of irrigation (flood irrigation, furrow irrigation and watering plant hills) are the most popular irrigation practices adopted by farmers across different cropping systems and different geographical locations. From the beginning of 1990 then Agriculture Development Authority introduced micro irrigation technology (sprinkler and drip irrigation systems) to the agriculture sector as a water and labour saving initiative. Later, different initiatives and activities have been taken by Southern Development Authority, Mahaweli Authority of Sri Lanka (MASL), Food and Agriculture Organization (FAO) and local non-governmental organizations (NGOs) to popularize this technology. The crop diversification strategies of the government institutes such as Ministry of Agriculture (MASL), and Department of Irrigation were well supported by these initiatives in introducing and promoting micro irrigation systems.

However, due to the incompatibility or non-suitability of the units introduced to the local conditions (specially the water quality, daily crop water requirement and etc.) this technology was initially rejected by the farming communities. With the expansion of the market by the involvement of a large number of private sector companies and introduction of more appropriate micro irrigation units for different cropping systems and localities, this technology became very popular and acceptable especially among innovative farmers. Government has been continuously promoting the technology through subsidized schemes implemented by the government and private sector agencies. The advanced technologies such as solar powered

water pumps coupled with micro irrigation systems enabled farmers/agri-entrepreneurs to use the system at remote areas where regular power supply is not available.

However, the high initial cost and technical aspects associated with the establishment of these systems has been a constraint for the majority of farmers to adopt this promising technology. Though water, labour and the energy (fuel/electricity) saving and significantly higher crop yield have been highlighted by research studies conducted on this special irrigation systems, the actual and quantified information in those aspects are not available in the scientific literature. Therefore, in order to popularize and further promotion of micro irrigation systems in a more systematic manner, it is an important need to investigate, audit and document the actual water and energy savings of this technology for different crops and different localities.

In this context, the set objectives of this study are

- To identify different types of major irrigation systems applied by selected farming communities for specific crop varieties.
- To Investigate the volume of water used by farmers for cultivating selected crops under different irrigation systems in different localities.
- To Examine the differences in energy consumption (including human labour) for irrigating selected crops with different irrigation systems.

Findings and Recommendations

It became evident from the study that even the farmers who practice irrigation (either by using conventional irrigation systems or micro irrigation systems), are not aware of daily crop water requirement depending on the stage of the crop, capacity of pumping devices, and number of hours of operation (pumping devices) and therefore conducting awareness creation training programs for farmers on irrigation practices and meeting daily crop water requirement is recommended as an essential need.

Majority of farmers use electric water motors with the efficiency ranging between 1 – 1.5 kW/h while others use kerosene water pumps with the power of 1.5 – 3.3 HP. Majority of farmers use water pumping devices less than 10 years since first use but without regular service and maintenance affecting adversely on long-run efficiency and minimum durability. Therefore it is important to conduct awareness programs for farmers to make them understand the efficient use of irrigation tools and advantages of irrigation, particularly, the MI systems as a means of climate adaptation.

The financial analyses indicated that the investment on MI systems for all the crops studied is worthwhile since the investment can be recovered within a short period of time compared to the lifespan of relevant crop varieties. Therefore, it is recommended to promote MI systems as a good technique to increase crop yield, water and energy saving and as a technology for increased climate resilience in the face of changing climate.

2. Building evidence on the impact of improved agricultural extension services on rice production in Anuradhapura District, Sri Lanka- (CR 561)

Research Team:	Mr. W.H.A. Shantha	- Coordinator
	Mr. M.A.C.S. Bandara	- Co-researcher
	Mrs. M.T. Padmajani	- Co-researcher
	Mrs. G.G. de L.W. Samarasingha	- Co-researcher

Source of Funding: Food & Agriculture Organization

Scope and Objectives:

The Government of Sri Lanka strives to identify sustainable ways of revising its current fertilizer subsidy programme, without hindering positive progress towards national rice self-sufficiency and rural poverty reduction objectives. Detailed empirical evidence plays a key role in achieving these objectives, in particular, for Ministry of Agriculture to understand the impact of different subsidy modalities (in-kind vs. cash), subsidy sizes, and targeting criteria to improve the design of its fertilizer subsidy need based on reliable data and information. Moreover, it is useful in understanding farmers' subsidy preferences and challenges faced in reaching the current subsidy programme in order to improve subsidy delivery.

Objectives of the Study

The primary objective of this study is to conduct a household-level survey on rice producers and analyze data on adoption and the performance of sustainable agricultural practices.

This survey builds upon a previous collaboration between FAO and HARTI in Anuradhapura District initiated under the Save and Grow Project. Under the Save and Grow project, a household survey of 1,100 rice farmers from 110 Farmer Organization was conducted in Anuradhapura District from October 2018 to February 2019. This data set serves as the baseline for the current project.

Specific Objectives

- To assess the drivers of adoption in different agricultural practices and their effects on welfare outcomes
- To analyze the impact of different fertilizer subsidy modalities on household welfare and productivity, as well as farmer preferences

The present study, in particular, was designed to collect second round of survey data covering all 1,100 households considered in the Save and Grow survey from October 2019 to February 2020 and to analyze the impact of different fertilizer subsidy modalities on household welfare and productivity, as well as farmer preferences. The survey replicates the previous Save and Grow survey, while adding additional questions related to fertilizer subsidy preferences. Between the first round of survey and the second round, the government experimented

provision of cash replacing its in-kind subsidy. The second round of survey data will, therefore, enable to compare two subsidy implementation modalities, and to utilize panel data econometric techniques that can improve impact analysis and causal inference.

Concluding Remarks

It was unable to conduct the survey as planned due to COVID-19 global pandemic situation. The survey is expected commence in 2021.

COMPLETED TRAINING PROGRAMMES

1. RURALINVEST Introductory Training Program

Training team:	Mr. W.H.A. Shantha	- Coordinator
	Mr. M.A.C.S. Bandara	- Co-Coordinator
	Mrs. G.G. de L.W. Samarasingha	- Co -Coordinator
	Mrs. M.T. Padmajani	- Co-Coordinator

Source of Funding: Food and Agriculture Organization

Time Period: 09 – 13 February 2020

Scope and Objectives:

In collaboration with the office of Food and Agriculture Organization (FAO), Sri Lanka and the FAO investment Centre Division (DPI), HARTI organized the RURALINVEST introductory training program (introduction to formulation and analysis of Agricultural Business Plan and Small investment projects). The RURALINVEST is a free multilingual methodology tool kit for preparing sustainable agricultural and rural investment projects and business plans.

The aim of this training is to create a RURALINVEST practitioner community in the country that will apply RURALINVEST to help investors/investor groups to formulate agricultural business plans for small rural investments and assist in the institutionalization of RURALINVEST at national level.

The program was successfully conducted with sixty participants from various organizations such as Department of Agriculture, Provincial Departments of Agriculture, Department of Agrarian Services, private sector companies and etc.

MARKETING FOOD POLICY AND AGRIBUSINESS DIVISION

ON-GOING STUDIES

1. Determinants of Farmer's Decision on Vegetable Production in Sri Lanka

Research Team:	Mr. Prasanna Wijesinghe	- Coordinator
	Dr. Ranjith Wickramasinghe	- Co- Researcher
	Dr. E. M. C. Priyankara	- Co- Researcher
	Mr. Virajith Kuruppu	- Co- Researcher

Source of funding: Consolidated fund

Scope and objectives

Unstable vegetable supply in Sri Lanka causes price fluctuation when demand remains a constant. Farmers' decisions to select vegetable crops may directly impact on vegetable supply from time to time. The information on such plays a vital role in making sound economic decisions. However, the reality of vegetable farming in Sri Lanka is that most farmers are unaware of what is required, how much is required and when it is required. The root of the problem may be in the accuracy of information. In this background, this study was planned to achieve the objectives (i) To examine the effectiveness of existing information-sharing tools/applications/systems for decision-making of vegetable growers in Sri Lanka, (ii) To understand factors/determinants leading to farmers' decision-making process in the vegetable production sector, (iii) To formulate strategies to reduce the prevailing inaccurate information of the vegetable production sector in Sri Lanka.

Major Findings

All eleven information-sharing tools/applications/systems that were available until 2019, has been observed to be low in awareness and adoption. Hotline of the DOA (1920 call centre) has been recognized by 33% of the vegetable growers and around 12% of the farmers responded to HARTI marketing prices sharing hotline. "Govi Mithuru App", "Krushu FM Web Radio" and "Govipola app" were known to about 3-4% farmers. None of the other applications exceeded 1% of awareness level in the total sample. Most of the vegetable farmers (around 65%) were unable to access most of the information-sharing tools because they have only feature phones and land telephones. Vegetable growers used to access information in different ways viz. extension service personnel (33%), agrochemical sale centres (20%), neighbor farmers (25%) etc. Cost of production varied between Rs. 88,000-185,000/acre in up-country vegetables whilst Rs. 23,000 – 223,000/acre in low-country vegetables. Around 48% of the vegetable growers obtained cost-effective returns. On the other hand, around 86% have received enough income to cover their cash cost and around 14% of the vegetable growers were unable to cover their cash cost of vegetable cultivation.

The results of the estimated multinomial logit models for up-country and low-country vegetables revealed the determinants of each crop selection. The cultivated extent was a determinant for bean, beet, cabbage, capsicum, carrot, knol-khol, leeks, snake gourd, cucumber, okra, luffa, long bean, tomato and eggplant. Weather forecast was a determinant for beet, cabbage, capsicum, knol-khol, leeks and all low-country vegetables except winged bean and thumba. New market ventures and entrepreneurship information were decisive to all up-country and low-country vegetable production. Selection of bean, cabbage and leeks influence selection of other vegetable crops. Market price forecast was a concern for selecting pumpkin, snake gourd, cucumber, okra, luffa, long bean and eggplant for cultivation. Bitter gourd, luffa, long bean and eggplant producers make the decision based on the market demand. Seed availability was a key determinant for cultivating bean, beet, cabbage, capsicum, carrot, leeks and all low-country vegetable growers excluding winged bean and thumba. Availability of the fertilizer in the market was not a determinant for selecting beet, carrot, and radish while bitter gourd, okra, luffa and kakiri producers consider as important. The knol-khol, leeks and radish producers do not consider the availability of pesticides unlike bitter gourd, long bean and tomato producers. Most of the crop producers such as bean, cabbage, capsicum, knol-khol, leeks, snake gourd, cucumber, luffa, kakiri and tomato consider cost of production as a determinant for cultivating these crops. Informal credit availability encouraged all up-country vegetable cultivation while bitter gourd long bean preferred formal credit availability. The availability and accessibility of the water were important determinants for selecting bean, beet, cabbage, capsicum, carrot, leeks, pumpkin, cucumber, okra, brinjal, luffa, long bean, tomato and eggplant cultivation. The availability of labour was a key determinant for all up-country vegetables and pumpkin, okra and tomato producers in the low-country. Availability of owned money encouraged producing all up-country vegetables and producing pumpkin, cucumber, bitter gourd, okra, brinjal, luffa, kakiri, thumba and eggplant in the low-country. The market price of the last season influenced to select bean, beet, cabbage, carrot, leeks, pumpkin, cucumber, okra, brinjal, tomato and eggplant for cultivation. Similarly the marketable capacity for bean, beet, cabbage, carrot, leeks, radish, pumpkin, cucumber, brinjal, long bean, kakiri and tomato, capsicum, carrot, leeks and radish producers and all low-country vegetable growers except winged bean consider seed cost as a determinant for selection. The yield of the crops has been an important factor for all crops except beet, snake gourd, winged bean, kakiri and thuba.

Recommendations

The awareness level of the vegetable growers should be enhanced on accessing and getting relevant information. Promoting mobile hotlines is recommended for sharing information due to insufficient accessibility for internet and applications. Information transformation system from top to bottom via the third party would be more effective rather than individual basis to develop a strong network with the field officers and enrich them from updated information related to support for decision making is recommended. Reduction or removal of tax on selected vegetables seeds and providing fertilizer subsidy for vegetable growers are recommended. A centre for disseminating market information near to the DEC should be established. A production plan at each zonal level should be prepared to stabilize the supply of the vegetables. Demand is acclaimed to control market price volatility. Farmers' collective marketing strategy is recommended. All Dedicated Economic Centers in Sri Lanka should be managed under the

Ministry of Agriculture. The yield of the crops is the most significant determinant for selecting a vegetable for growing and hence printing potential yield information on the seed packet is recommended. Information on pest and disease attack in different crops from the seed selling centres is recommended. Since 80% of the farmers have utilized the price information on the crops for decision making, dissemination of forecast prices as well as the cost of production among vegetable growers through public media is recommended.

02. An Analysis of Paddy/Rice Value Chain in Sri Lanka: A Case of Major Rice Milling Zone, Polonnaruwa, 2019/20

Research Team: Mr. W.A.N. Wijesooriya - Coordinator
 Mr. Duminda Priyadarshana - Co-researcher
 Mr. Virajith Kuruppu - Co-researcher

Source of Funding: Consolidated Fund

Scope and Objectives

Rice is the most important crop in Sri Lanka because majority of farmers in the country are rice farmers while all citizens of the country are rice consumers and therefore rice sector receives highest attention from the government. Paddy/rice industry has now become an important issue as sometimes it creates political instability in the country. The present government consider paddy as the symbol of the dignity of rural populations. The main area of this study, Polonnaruwa district is the largest rice processing area in the country having 160 commercial rice mills. In terms of quantity of paddy milling per day 19% of the mills belongs to the category, greater than 20Mt/day while 34% have the capacity to mill 8-20Mt/day. Further Polonnaruwa is one of the major paddy producing areas in the country. The paddy farmers in this district produce 17% of the total marketable surplus of paddy in the country. Based on multistage sampling method Medirigiriya and Dimbulagala paddy producing DS Divisions were selected for the farmer survey and stakeholders viz. paddy collectors, rice millers, by product collectors, feed manufactures and rice traders.

The overall objective of this study is to carry out a detailed Value Chain Analysis (VCA) of the paddy/rice value chain in the Polonnaruwa district, the largest milling Zone in the country. The specific objectives are to examine the existing practices of supply chain of paddy/rice and its allied products, estimate the gross margins, discover the strengths, weaknesses, opportunities and threats of the key value chain actors throughout the VC and identify key policy initiatives needed to upgrade and enhance the efficiency of paddy/rice value chain in the country.

Findings of the Study

In general, the average yield of paddy under major irrigation in Polonnaruwa district is often 6% -8% higher than the normal average yield under major irrigations in the whole country and in particular the average yield of Medirigiriya and Dimbulagala records a higher amount exceeding the overall average of the Polonnaruwa district. The study showed that the average yield ranged between 89- 138 Bu/Ac in these rice producing areas under major irrigation schemes. The average cost of production of a Kg of paddy was approximately Rs 24.50 in these

areas in the year 2019 while farm gate price for a Rs/Kg of quality paddy ranged between Rs 48.00- 52.00, which has been an increase of 25% compared to the same in 2018. This upturn was due to the decision to increase the guaranteed price of paddy up to Rs50.00/Kg from the Mahan season 2019/20.

The most popular paddy/rice marketing channel in the surveyed producing areas is,

Farmer → Collector → Rice Miller → Wholesaler → Retailer → Consumer

Sometimes **brokers** function between collectors and millers. The roll of brokers becomes prominent in the time when paddy stocks are scant.

Value addition by the farmers at farm gate level adds about 10% to the cost of production, which is the cost for drying paddy up to the standard quality (14% moisture). A major problem faced by farmers in value addition is lack of an appropriate way to dry paddy. At present, they use one side of carpeted road for the drying paddy.

Millers add a higher percentage in the value chain for cleaning paddy stocks, storing and packing rice and transportation of rice to the major cities and these amounts to 44% of the cost of production of rice. There are about 100-110 functioning rice mills in the district with an overall milling capacity of about 869,400Mt annually. The marketable surplus of paddy in the district in a normal producing year is 471,000Mts and nearly 50,000 farmers throughout the Polonnaruwa district annually produce this quantity to the market. The balance milling quantity of large scale millers in Polonnaruwa, which is about 397,000 MT's, is obtained mainly from the Ampara, Batticaloa and Anuradhapura districts.

Rice mills annually produce 46,000Mts of rice bran and nearly 15,000 Mt of rice polish as major byproducts in the process of rice production. Rice bran is provided to RICE-O Company, an Indian processing company, which produces rice oil in "Laxa Uyana" Industrial park in Polonnaruwa. The rice polish is supplied to animal feed producing industries in Bingiriya, Kuliyapitiya, and Udubaddawa in North Western province. The major problem faced by animal feed manufactures is adulterating of rice polish by the suppliers.

The husk is mainly used in boilers to produce the live steam for parboiling and drying of the paddy in the rice mill. The boiler is operated by direct firing of paddy husk in rice mills. The excess is provided to cement factories in Trincomalie and Puttalam as a raw material. There are about 20 collectors each for collecting rice bran and polish and husk connected to the rice mills in Polonnaruwa.

It was found that in year 2011, there were three paddy collecting centers per village but at present these collecting centers at village level have reduced giving way to about nearly 20 multipurpose purchasing and selling centers per Divisional Secretariat for purchasing paddy, selling agro chemicals, fertilizers, seeds and sometimes hardware items.

Further according to the study in 2011, there were 160 rice mills in the district but now it has reduced to nearly 110 since a number of small scale rice mills had left the industry paving way to increase the capacity of major scale rice mills. Medium scale rice mills have also increased their capacity.

Policy Recommendations for Paddy/Rice Value Chain Development

Farm Level

Design strategic programmes to replicate the agronomic practices of farmers who get high yields in areas such as Medirigiriya and in other areas to facilitate increasing their average yields. Farmers need infrastructure facilities to dry paddy in order to value addition to their harvest. For this purpose standard concrete threshing floors are needed. Programmes should be designed at public and private level to influence the private sector to provide quality threshing floors to increase the efficiency of the value chain.

Further, facilities should be provided to farmers to feed information about their stocks into a digital platform, through which a programme can be implemented to link buyers.

At Collector Level

Traders who are engaged in collecting paddy can contribute towards the process of drying paddy. It is worthwhile to conduct programmes to encourage the traders to invest on mini dryers and concrete floors for rice value addition.

At the Level of Rice Miller

The small and medium scale millers should be encouraged to succeed by innovation and maintaining good relationship with financial institutions to upgrade their milling industry. Similarly, government should encourage medium scale millers to establish modern automatic private sector mills in high surplus rice producing rural areas especially in the Eastern and North Central Provinces and also encourage the private sector to establish rice based and byproduct based industries in rural producing areas such as Padaviya, Kebithigoleewa, Ampara, Lahugala, Pothuvil, Elehera, Wilacchiya, Mannar, Mulativu, Kilinochchi and Batticaloa.

Based on the experiences gained, the study recommends carrying out a detailed survey on rice mills and stakeholders including capacity, machineries, storages, rice types etc. since there is a strong need for a detailed census and ICT based regular updating of databases as a collaborative study with the involvement of HARTI, IPHT, PMB and Ministry of Finance.

A detail study is needed on Rice Oil industry, which is presently handled by only two companies to identify the potential and strategies for popularizing the rice oil among the local community and to investigate the quantity export to India as raw rice bran.

Further there is a need to investigate the huge amount of Rice Husk Ash (RHA) as a byproduct of the industry, which is currently completely underutilized and to examine the potential of making Silica from RHA.

There is a strong need to encourage by providing financial support, technology, market and export assistance to innovative millers who are involved in making value added food products (E.g. : Rice Kotthu, biscuits, bread) from rice.

The preparation of the final report of this study is in progress.

03. Issues in Cultivating Other Field Crops (OFCs) in Intermediate Season

Research Team

Dr. N.P.G. Samantha	- Coordinator
Dr. E.A.C. Priyankara	- Co- researcher

Source of Funding: Consolidated Fund

Scope and objectives

The national production of OFCs has been drastically declined over the last four decades. Consequently, the country had to depend on imports to meet the demand of OFCs. The import bill of OFCs was Rs. 41,734 million in 2018. This leads to outflow of foreign exchange as well as a decrease in food security and nutritional status of the country. Hence, the increase of OFC production is a major concern at present. Third season cultivation has been recommended by the DoA and many other policy documents have been presented as an option to increase OFC production. However, Sri Lanka has not been able to achieve production targets of many of the OFCs. The Chairman of the Board of Directors of HARTI has made a request to find out the issues hindering the expansion of OFC cultivation in the intermediate season in Sri Lanka at the Board meeting held in August 2019. Consequently HARTI has initiated this study in November 2019.

Objective of the Study

The main objective of the study is to examine the issues impeding the expansion of OFC in third season.

For achieving the prime objective the following objectives have been specifically considered:

1. To identify problems and constraints faced by farmers in cultivating OFC in the third season.
2. To make commendations to overcome problems and constraints in cultivating OFC in the third season.

Hambantota and Anuradhapura districts have been selected for the study based on DoA recommendations for OFC cultivation in the third season. Both primary and secondary data have been collected for the study. The sources of secondary data were Department of census and Statistics, DoA, district agricultural offices, and Agrarian Services Center records.

Fifteen focus group discussions were conducted with the participation of 150 farmers from Hambantota and Anuradhapura districts to collect primary data and information from farmers to achieve the first specific objective..

Findings

1. The durations of interrelate season is 60-70 days. Hence, green gram was selected by the most of the farmers for cultivating in the intermediate season that is more appropriate for a short period.
2. Inability to find quality seed at the beginning of intermediate season has been a major problem in most study locations. Since supply of MI5 and MI6, the recommended local seed varieties were inadequate the farmers tend to use imported green gram for consumption purposes as seeds.
3. Cattle and wild animal damage has been another matter of concern. Since the period between major cultivation seasons traditionally is allocated for free grassing for cattle, cultivation of OFC during intermediate season in paddy fields has created a conflict between dairy farmers and OFC farmers, particularly, in the Hambantota district. This has been a major reason for disengaging farmers from OFC cultivation in the intermediate season.
4. Lack of proper marketing mechanism, low market price at the time of harvesting, lack of buyers, and less market value for MI5 and MI6 varieties compared to imported seed were identified as marketing issues.
5. Harvesting of green gram is high labour intensive. Lack of labour and high wage rate cause increase in green cost of production.
6. Lack of coordination among the institutes that are responsible for promoting third season cultivation has also been an issue.

Recommendations:

1. A proper mechanism should be established to provide quality seed at the beginning of the cultivation season.
2. In order to reduce the crop damage from free rearing cattle, attention should be focused to provide grass lands. Proper scheme should be established to compensate crop damage.
3. Better coordination should be established among the government institutes of Agrarian service centers, Irrigation department, administrative institutes etc. and priority should be given for third season cultivation.
4. Forward sales agreements between farmers and private sector food processing institutes should be established in order to address marketing issues.

04. Agriculture Market Information Service (AMIS)

Agriculture Market Information Service (AMIS) is a project implemented for collecting price data (wholesale, retail and farm gate price). According to the plan, wholesale price data shall be collected from thirty four (34) market places and retail price data from forty three (43) market places (Pettah, Wellawatta, Kirulapona Nugegoda, Narahenpita, Dematagoda, Thotalaga, Kadawatha and Kiribathgoda). Producer prices shall be collected from nineteen (19) producing areas. Most of the personnel involved in price data collection are casual investigators and availability of casual investigators in each market place determines the efficacy of data collection from these market places. In addition, unexpected situations, pandemic situations such as Covid 19 or any other disaster can also affect proper market price data collection.

In the year 2020, from January to the end of August, HARTI has been able to collect price data from almost all market places. There were 28 field officers deployed in 28 locations and 11 casual investigators collecting information from Colombo markets. However, in September 24 out of 28 casual investigators resigned to join the government service as development officers under the graduate recruitment program of the state. In October 2020, HARTI recruited 12 casual investigators although there were interruptions due to COVID lock down. Therefore, up to December 31, 2020 price data were collected by 16 casual investigators. In addition, there is a Mobitel dialing service called 6666 providing daily wholesale prices of vegetables from 7 dedicated markets in Sri Lanka.

5. Maize Value Chain Analysis: Status, Constraints and Opportunities in Feed and Food Industry

Research Team:	Ruvini Vidanapathirana	- Coordinator
	Roshini Rambukwella	- Co-researcher
	W.A.N. Wijesooriya	- Co-researcher
	Virajith Kuruppu	- Co-researcher

Source of Fund: Consolidated funds

Scope of the Study:

Maize has assumed its importance as an input to the growing livestock feed industry, especially the poultry sector. Maize accounts for approximately 60% of raw material inputs for the poultry sector. The current corn prices are on the rise and the prices of imported maize are high due to increasing trend of prices in the global market coupled with tax imposed on maize imports. As maize is one of the main ingredient of poultry feed, the feed cost has also shown an increasing trend over the years. This shows that the higher prices of poultry feed have long been a nagging issue for the poultry industry in Sri Lanka as the local production of maize remains significantly insufficient. These trends continue to result in increased cost of production of chicken and eggs as feed cost is the biggest cost component of the cost of production of both chicken meat and eggs consequently increasing the prices of chicken and eggs in the country. In addition to its

utilization as an ingredient of poultry feed, the consumption of maize based food items such as locally produced ready-mix cereals (Thriposha and Samaposha), popcorns and boiled maize cobs has also increased during the past few years. As a result, the local demand for maize has significantly increased during the past. The maize sector in Sri Lanka has several investment opportunities to ensure food security, feed security, nutritional security, and enhanced income to growers in the country. Therefore, the question still remains as to why necessary steps are not been taken to encourage the local maize industry and introduce new methods to enhance productivity which in turn could serve to boost both the local maize industry as well as the poultry industry.

In view of the scenario this study was planned to assess the maize marketing system, maize storage, warehousing and processing facilities and the level of maize trading in the county by analyzing the maize value chain from input supplier to the consumer depicting a holistic picture of existing challenges, opportunities and entry points in the maize value chain. Therefore, the study is likely shed light on required efforts to enhance the production and utilization of maize at larger scale to bring about economic development.

Objectives:

The overall objective of this study is to conduct a comprehensive value chain analysis of maize to provide recommendations for intervention and leverage areas including business models needs to be implemented by the stakeholders to improve maize value chain competitiveness.

Specific Objectives

1. To examine the existing practices of supply chain of maize and its value added products
2. To analyze economic performance (margins, cost, returns and efficiency) of different actors along the supply chain through mapping the value chain
3. To analyze the strengths, weaknesses, opportunities and threats of key value chain actors to improve productivity and competitiveness of the value chain
4. To identify the key policy initiatives, need to upgrade and enhance the efficiency of maize value chain in the country

Current Progress

Literature review of the studies related to value chain analysis of agriculture commodities has been completed. Secondary data collection has been carried out including a compilation of documents with relevance to the focus of the study through a desk review as well as data and information collected from Department of Census and Statistics, Department of Agriculture, Department of Customs, Central Bank published and unpublished reports and websites. The proposal was presented to the Research and Training Committee (RTC) and only 10% of physical progress was achieved due to the spread of COVID-19 disease in the country.

6. Production and Marketing of Big Onion in Sri Lanka: A Value Chain Analysis

Research Team: Mrs. Roshini Rambukwella - Coordinator
Mrs. Ruvini Vidanapathirana - Co-researcher
Mrs. Thushara Dharmawardhane - Co-researcher

Source of Funding: Consolidated Fund

Scope and Objectives:

Big onion of which the price is primarily determined by the import policy of the government has been a heavily debated commodity in Sri Lanka. Every year the government imposes a tax on importation when the time of local big onion arrives to the market to help, encourage and protect the local producers as the main policy of the government for big onion production. The government strives to achieve a self-sufficient stage in the production of big onions as Sri Lanka spends a significant amount of cash outflow every year on the importation of the big onions (Rs. 15,156.00 MN in the year 2019). Meanwhile, in the recent past it has been noticed that the big onion production has been affected in Sri Lanka and therefore consumers are also paying a higher price for the big onions. Though the government's concern is to promote big onion cultivation in many ways, there are some setbacks emerged in this sector. Big onion cultivation, number of farmers involved, and the production has drastically fallen in the recent past. Over the last ten years, the quantity of imported big onion has also increased continuously. This situation has caused a big gap between the domestic requirement and the local production. Sri Lanka, imports big onions mainly from India but the Indian government has banned export of big onions since October, 2019 as production losses due to unfavorable weather condition. At the same time, the local production is not enough to cater to the consumption demand and this situation has escalated wholesale and retail prices of big onion in the Sri Lankan market during October and November, 2019. The Consumer Affairs Authority stated that price of imported big onion was showing an unreasonable increase within that period and which climbed up to Rs. 300.00/kg by February 22, 2020. It shows that, an increase in price of onion affects the consumer by way of increase in food consumption budget, while a decrease in onion prices below the cost of cultivation affects the producer. During this period low production of local big onion and limited imports has created a situation of low availability of big onion in most of the markets so that most consumers were not able to afford the price. Weak supply chain and market inefficiencies appear to have influenced this situation and hence to address this it is vital to look into the value chain aspects of big onion in order to understand the full chain map, the share of gross margin by actors and to see the role of key actors and facilitators in the chain map understanding the gains and losses along the big onion value chain, from farmer to consumer. The new government policy document of "Vistas of Prosperity and Splendor", intends to promote the agricultural sector in which small producers use small extents of land for high quality outputs by using modern technological methods. The aim of this policy is to develop systems to promote cultivation and production of onions locally to save foreign exchange annually. In order to achieve this target, it is very important to conduct a full scale value chain analysis in the onion sector to identify the bottlenecks and future prospects of the industry. Therefore the main objective of this study is to carry out a detailed VCA of the big onion industry in Sri Lanka, identifying the major constraints and opportunities of production

and marketing and suggesting recommendations for intervention and leverage areas that need to be addressed in the big onion value chain with the following specific objectives;

1. To identify and map existing big onion value chain in Sri Lanka (imported and local)
2. To analyze economic performance (margins, cost, returns and efficiency) of different actors along the big onion value chain
3. To identify the factors affecting the onion production in the study areas
4. To identify the constraints/ bottlenecks and opportunities along the value chain

Current Progress

Study circle presentation and the RTC presentation have been attended. Secondary data collection is in progress (10% of the Physical target has been achieved).

COMPLETED STUDIES – EXTERNALLY FUNDED

1. End-line Survey on EMPOWER: Building Peace through the Economic Empowerment of Women in the Northern Sri Lanka

Research Team:	Mr. I.V. Kuruppu	- Coordinator
	Mr. M.A.C.S. Bandara	- Co-Researcher
	Mr. W.H.A. Shantha	- Co-Researcher
	Mr. W.A.N. Wijesooriya	- Co-Researcher
	Mrs. M.T. Padmajani	- Co-Researcher

Source of Funding: ILO & WFP

Scope and Objectives:

A project on building peace through the economic empowerment of women in Northern Sri Lanka (EMPOWER) was implemented in collaboration with the International Labour Organization (ILO) and World Food Programme (WFP) with the support of the Government of Sri Lanka and Puthukkudiyirippu (PTK) Women Entrepreneurs' Cooperative Society (PTK COOP). The broad objective of this project was to increase access to economic empowerment, social integration, resilience and peace building participation for women in the Mullaitivu district, which is a conflict-affected district in the Northern Sri Lanka. The main activities of the project include developing analytical, social networking and business strategy skills, social and business language skills, business start-up management, and peace awareness and skills and strengthening and supporting actions to ensure sustaining peace in the region. The purpose of the end-line survey was to measure the changes made in the Puthukkudiyirippu project area over the life of the EMPOWER project, in order to assess the extent to which the project

objectives have been achieved, measure the overall impacts on populations in the project areas, assess the assumed causal pathways linking project activities to outcomes and impacts, and determine how interventions contributed in achieving project goals. A sample of 300 beneficiary households was selected for the survey by stratified random sampling covering 19 Grama Niladari (village cluster) divisions of the Puthukkudiyiruppu DS division. KoBo ToolBox was utilized for data collection and in addition, focus group discussions (FGDs) were conducted with the project beneficiaries and the office bearers of the PTK COOP to gather more detailed information.

Findings:

The vast majority of the beneficiaries are former residents in the area whom resettled after the civil conflict. Since Puthukkudiyiruppu is a Tamil speaking area most of them have native or bilingual proficiency in Tamil language. The proficiency in English and Sinhala languages has been very poor levels even in the end line it showed some improvement following the EMPOWER project implementation. As per the baseline data, a higher share of non-food expenditure has been spent on debt repayment and children's education. It has also been evident from calculated food ratio values that more than half of the monthly expenditure was on food items. The high food ratio and higher debt payment indicate that still a fair amount of improvement needs to be attended to enhance the living condition of the beneficiary households. Skilled labour and non-agricultural unskilled labour have been the main income sources of the sample households. Unavailability of suitable lands for agriculture, land ownership issues, climate change influenced factors, damage caused by wild animals, irrigation and water management issues have been identified as causes for diverting people from agriculture. Though the cash assistance and material support as well as training and awareness creation programs that have been provided by the project, the attention on increasing market access has been minimal. With the project involvement for generating domestic and agricultural water sources, the dependence on neighbor water sources has declined with increased use of agro wells. Even though soil and crop suitability analysis have been conducted prior to the project implementation there is a shortfall in disseminating knowledge on crop management and marketing. The gender norms have not been a cause for limiting women in involving in different economic activities. Low education and poor exposure to outside areas, where they can expand their marketing activities have become impediments to explore marketing opportunities for these products. All agricultural programs have been production-oriented and not market-oriented and none of those identified marketing arrangements for disposing end products.

Recommendations:

There is a huge potential for agricultural development in this area specifically for cash crops such as groundnut and also soil and agro-ecological conditions favoring fruit crops such as mango, banana and papaya cultivation. This aspect needs to be fulfilled as a public private partnership (PPP) through forward contract/trade agreements (FTAs or FCAs). Establishment of collective marketing systems, marketing centers such as Dedicated Economic Centers and Developed Pola Marketing systems are needed to produce more marketable surplus. Providing, water pumps, water pipes/hose and micro irrigation units with high quality can be recommended

as measures that could be taken to increase the water availability for irrigation in dry spells. Agro-wells should be established for irrigation during the dry spells in June – August enabling the beneficiaries to reap the maximum benefits. Providing pipe born water facilities for the communities living in the area, has been identified by the participants as a viable solution to the water shortage especially for drinking, food processing and other domestic purposes. Much concern should exert on the reconciliation with the other communities. Peace building, reconciliation and interacting with other communities could be promoted by collaborating with the government institutional setup. In order to increase the reconciliation of the beneficiary women with other ethnic groups, organizing more practical interactive excursions and field visits to the other communities with similar livelihood background can be recommended.

HUMAN RESOURCES AND INSTITUTIONAL DEVELOPMENT DIVISION

The objective of the training programmes conducted by HARTI is to develop knowledge; attitude and skills of adults involved in agrarian and rural development activities, and thereby improve the socio-economic standing of the farming community in Sri Lanka.

The clients of HARTI's training programmes belong to a broad range comprising field officers, higher officials of Government and Non-Governmental Organizations involved in development activities in the rural sector and farming community in Sri Lanka.

Training programmes conducted by the Division are structured as follows:

1. Coordinating, organizing and preparing general training programs based on the needs of the farming community and the national development programme
2. Coordinating and preparing training programs at the request of various organizations related to agrarian and rural sectors
3. Providing training expertise to other requesting organizations.
4. Designing and conducting the Action Research Project under National Development programme.

Besides above national and international training, seminars and workshops are organized and co-ordinated collaboratively with other national and international organizations.

The training programmes conducted during the year 2020 are as follows.

1. Training Programme on Women Farmer Empowerment

The women farmer plays an important role in the smallest unit of the agrarian society all over the world. Along with their daily routine activities, their participation in agricultural activities contributes to uplift the standard of living. But, in the Sri Lankan situation, the women farmers do not generate adequate income comparing to other occupations. Nearly 29% of employed women are engaged in the agriculture sector in Sri Lanka. Meanwhile, it is evident that the existing traditional social structure, weaknesses in leadership, traditional attitudes, poor knowledge on entrepreneurship, communication gaps, weaknesses of participation in development activities, lack of knowledge on the legal power and management issues of Sri Lankan women farmers directly impacts the operation of the women farmer organizations. Therefore, it is important to assess the women farmers' contribution towards agriculture and the constraints faced by them, for the development of proper agricultural management strategies as well as women empowerment.

According to the literature, women participation in agriculture sector in Sri Lanka is inadequate. Therefore, in par with the government's aspiration to convert the farmer community to prosper by empowering the farmer socially, culturally and economically, empowerment of women farmers is an essentially important need and therefore this programme was designed to achieve that propose by evoking their organizational and management skills.

The objective of this training programme is empowering farmer organization through improving the knowledge, attitudes and skills of leaders of "sitamu" women farmer organization and making women farmers as functional stakeholders in the agricultural development process. The strategy proposed is promoting the abilities of women farmer organization leaders through training. The project was started in 2020 and ended in the same year. Direct and indirect beneficiaries of this project were 1604 of agri entrepreneurs and leaders of all women farmer organization of agrarian development centers in the Matale district. The project was funded by the treasury.

Training Team: Mr. Sangeeth Prasad Fernando-Coordinator/Resource Person
 Mr. S.M.A. Samarakoon - Resource Person
 Mr. H.M.J.K. Herath - Resource Person
 Provincial and Inter Provincial Council Agriculture Department
 Resource person

ON-GOING STUDIES

1. Impact of Home Garden Coconut Cultivation on Coconut Kernel based Industries in Sri Lanka

Research Team: Mrs. G.V.N. Aiome - Coordinator
 Mr. S.M.A. Samarakoon - Co-researcher
 Mr. P.C.J. Silva - Co-researcher
 Mr. S.P. Fernando - Co-researcher
 Mr. Virajith Kuruppu - Co-researcher

Source of Funding: Consolidated Fund

Scope and Objectives of the Study:

Main Objective

Identify the possibility of increasing coconut production through home gardens

Specific Objectives

- To find factors influencing coconut production and estimate the potential production in home gardens.

- To find ways of minimizing the constraints of coconut cultivation and identify possible remedies for such at the home garden level.
- To provide reliable evidence for policy makers to promote coconut cultivation in home gardens.
- To identify the impact of home garden coconut production on coconut kernel based industries in Sri Lanka.

Findings and Recommendations

1. Recommendations for Households

- Promote gap filling in home gardens (land extent below 40 perches), by planting coconut in the urban and semi-urban home gardens, depending on the space available. The research has identified the possibility of gap filling with one tree, Gampaha 29%, Kurunegala 34% and Puttalam 38%. Possibility of gap filling with two trees, Gampaha 26%, Kurunegala 30% and Puttalam 35%. The underlying objective in this regard is meeting the domestic culinary needs of the household

- Preferred Variety for Future Cultivation by Households**

The HHs covered in this study were individually contacted and recorded their observations on each variety including their satisfaction or otherwise and varietal preferences, for future cultivation by households. The preferences for each variety were D X T hybrids; Gampaha 55% Kurunegala 56% and Puttalam 58%, Tall varieties, Gampaha 41% Kurunegala 37% and Puttalam 39% and for both varieties Gampaha 2% Kurunegala 6% and Puttalam 4%.

- Respondents of the study area spend Rs. 2100.00 monthly for buying coconuts (coconut nut price at Rs. 55.00), which is a considerable expense. It is 7 % of the average monthly earnings of a median household income per month in Sri Lanka. Monthly proportion to buy coconut price increases proportionately with the escalating nut price. According to the field survey data, two coconut trees (with the yield of nearly 100 -120/nuts/tree/year from DT hybrid variety) are enough to fulfill the house hold coconut requirement of a 4-member family. Our survey study observed that, average HH size is four in the study area and the annual household coconut requirement was observed as nearly 360 nuts. (This amount can be reduced by using blender or stone grinder to extract coconut milk). According to CRI research findings 30% - 40% from the domestic requirement get wasted in the traditional method of extracting coconut milk.
- According to the HH survey data. annually home garden coconut trees get damaged due to pest attacks causing a yield loss of 15% to the national production. Accordingly by controlling pest damage, this can be made available for industrial requirements. This suggests that the control for coconut pests in HGs is an important factor in coconut production.

- e. According to the analysis fertilizer application is a significant predictor for the production of coconuts. Home gardens with fertilizer application can increase the production by 9.82 times more on or above the average in home gardens than without fertilizer.
- f. The capacity of extension services for home garden coconut cultivation needs to be strengthened.

Recommendations for Industries

- a. The survey data highlighted the need for stable prices for the coconut processing industry (22%), mainly the coconut kernel based production industries for their outputs.
- b. The study has shown that the productivity of the coconut industry in Sri Lanka is very low compared to other Asian countries. In order to expand the industrial prospects in coconut it is essential to increase both the production and productivity (19%) in coconut lands. Manufacturers highlighted the need of modern technological know-how (19%) in the processing sector in order to maintain high standards.

2. Main Suggestions made by the Coconut Kernel based Product Manufactures

- a. According to small scale oil mills, it is difficult to compete with the palm oil price without introducing new technologies and machinery.
- b. DC manufacturers also emphasized on the importance of upgrading desiccated coconut mills (9%) with new machinery for increasing the production efficiency.
- c. The demand for coconut and its value-added products continue to increase exponentially with the growing acceptance of opportunities for new value added products in international markets.
- d. There is a strong need to improve and promote technology dissemination methodology since there is a significant gap between technology development and technology dissemination in the country.
- e. Access to markets and market intelligence has been poor signifying the need for identifying new markets through market research, participation in exhibitions, trade fairs etc.

GEOGRAPHICAL INFORMATION SYSTEM UNIT

1. Development of an APP to create Market Link among Producers, Sellers and Consumers

Team: Mr. H.M.J.K. Herath - Coordinator
 Mr. B. Pulasthi - App Developer
 Arthur C Clarke Institute for Modern Technologies

Source of funding: Consolidated fund

APP Name Supiri Pola (සුපිරි පොල) **Google Ply Store**

Scope and Objectives

The purpose of this project is to create a link between suppliers and customers in agricultural product market and support services (vegetable, fruit, seeds and plants, ayurvedic products, organic fertilizer, fisheries, machinery services etc.) and link entire supply chain to a single platform. The proposed system will improve the efficiency of the agricultural product market process and minimize wastages.

Description

The scope of this Project is to plan, design, build, and implement a Database with user friendly mobile application with administrator module to bring entire agricultural supply chain to a single platform by reducing number of intermediaries. Access permissions will be granted to appropriate personnel in order to update, process, manage, and view data and information. The proposed application will contain.

- Supplier registration process
- Facilities to find districts-wise suppliers
- Facilities to find districts-wise customers
- Supplier and Customer rating system
- System in Sinhala medium and facilitate translation into Tamil and English
- Facilities for chat messages and to comment on advertisements
- Facilities for Registered Users to check user account details and change and remove details
- Facilities to monitor and approve advertisements by administrator
- Facilities to keep history records

Major Observations

The '**Supiri pola**' app was launched as a test run in Google play store in April 2020. This has been downloaded by 1214 users by 12th February 2021. Among them 72% of farmers/producers and 31% sellers have merchandized their products with the aid of the app.

Suggestions for Way Forward

Farmers/producers, whole sellers, middlemen, retailers and consumers in main economic centers should be randomly selected and make them aware of the proposed app and its benefits. Further they should be trained to operate the app in order to minimize both marketing issues and postharvest loss. Next, the app should be promoted in both English and Tamil in addition to Sinhala.

STATISTICS AND DATA PROCESSING DIVISION

In keeping with the primary objective of the Hector Kobbakaduwa Agrarian Research and Training Institute (HARTI), become a centre for collecting, updating, analyzing and dissemination of information on the agrarian sector, Statistics and Data Processing Division (SDPD) was established to make a concerted effort to accomplish this goal. Apart from storing and analyzing data gathered in socio-economic surveys conducted by the institute, the following three goals of the division essentially support in achieving the institutional goals.

- To be a national centre of excellence in agricultural information management.
- To be a key division for the enhancement of the quality of research and training activities through application of statistics and information technology.
- To enhance automated information processing systems by adopting current information and communication technology tools and techniques.

The division comprises two units: namely the Data Development Unit and Data Processing Unit. Later a computer Technology Unit was also established at the division to provide services on computer and networking infrastructure facilities to fulfill the requirements of the Institute.

Data Development Unit

An Agrarian data bank which was established at the unit to facilitate access to information of relevance in agrarian development and related fields, functions as a repository, a collecting agency and a service bureau. It is especially designed to play the role of a comprehensive source of statistical information to government officials, policymakers, researchers and other interested parties and to coordinate the dissemination of information in a useful manner.

The data bank comprises two forms of data; development indicators and survey archives. The development indicators are the secondary statistics collected from government agencies on various attributes and survey archives include primary data generated through field surveys conducted by the Institute. The data bank also provides consultancy, user and supplier education, training in computer use and an awareness service to assist in the retrieval and processing of information. Although agriculture, fisheries, forestry and industries were the potential areas at the time of establishment, priority was given to information on the agricultural sector. It was contemplated that comprehensive coverage of varied aspects of agrarian development and living conditions of farm households can be carried out under the agricultural sector. Thus a growing amount of district wise information collected monthly, seasonally and annually for around 1800 indicators falls into broad categories such as population, employment, land use, land settlements, fertilizer, cost of production, marketing, etc.

Data are available with regard to the crops specified under 11 major crop groups, viz. cereals, vegetables, fruits, tuber roots, livestock, industrial crops, spices, legumes, oil seeds, plantation

and other crops. Currently, the centre consists of approximately 2.8 millions of records stored both in manual and computerized forms starting from 1950s. Accordingly, HARTI Information Centre maintains a database with district wise information collected from diverse sources such as the Central Bank, Department of Customs, Department of Census and Statistics, Department of Agriculture and the Marketing and Food Policy Division of HARTI. An automated system has been implemented in the division for accessing information in the databases. Further, certain highly demanded information is stored in the website. External and internal users could directly contact the SDP division to obtain agricultural information.

Data collection was carried out from the above said sources together, web sites and text books published by relevant organizations. Food commodity prices were collected from Marketing and Food Policy Division of HARTI. Following information was collected during the year.

- Exports – 2018
- Retail prices – 2019
- Producer prices – 2019
- Livestock statistics – 2015-2019
- Extent - 2019
- Production - 2019
- Extent Assweddumized – 2018, 2019

The computerized database was updated with following indicators during the year.

- Paddy statistics – extent and production - 2020
- Producer prices – 2019
- Retail prices - 2019
- Extent and production in Maha Yala and total in 2019
- Extent Assweddumized – 2018, 2019

The database was updated with 72,904 records on above indicators.

Provision of data on requests

A total of 80 requests for Agricultural information was received from internal (62) and external (18) users.

Books referred to collect data

- Economics and Social Statistics of Central Bank – 2019
- Statistical abstract of Department of Census and Statistics -2019

Data Processing Unit

In par with second and third goals of the SDPD the Data Processing Unit was established for manipulating agricultural database and data coming from sample surveys. Once the data are coded and verified from data development unit the technical support is provided by the data processing unit for analyses. During the year the unit provided its services for updating agricultural information in the database.

LIBRARY

The main objective of the library is to collect, compile, retrieve and disseminate information related to the agrarian sector for the benefit of HARTI research staff and other interested persons and organizations. During the year the staff borrowed 258 books, 16 reference books and 18 journals for reference. The number of visitors to the library during the year was 105.

Acquisition of Books, Journals and Reports

The library remained closed for several months in the year due to the Covid-19 pandemic and no new books and magazines were purchased. During the year, the library received 32 magazines/journals and 53 books as donations.

Library Services

Requests from the research staff and outside users for information and documentation services such as literature search, reference services, current awareness services and photocopying services were duly attended.

Access to internet based information facilities was further extended for the research staff with the Wi-Fi facility set up in the library. Collection of newspaper articles on various subjects and indexing of the articles for quick reference continued for the use of both internal staff and outside users.

Inter Library Cooperation (ILC)

The HARTI Library provides library material through the inter-library loan facility. This facility is available only for the requesting libraries and not for individuals. Inter-library loan facility functions between university and special libraries at present. The libraries that wish to request for the facility have to sign the inter-library loan agreement prior to obtaining publications on loan. In addition, e documents were shared *via* email with the universities for research purposes.

To update the National Union Catalogue for year 2020 bibliographical references were supplied from the library database to the National Library and Services Board.

Digitization of Institute's Publications

HARTI publications have been successfully digitized under the National Digitization Project of the National Science Foundation and these can be accessed on <http://harti.nsf.ac.lk/>

The aim of this project is to establish an institutional e- repository to provide a fast and enhanced online access to the institute's publications.

HARTI Publications	Collection Name	Collection Views
Journals	Annual Reports	90
	Annual Reports (Tamil)	50
	Acts	46
	Sri Lanka Journal of Agrarian Studies	80
	ගොඵි කටයුතු අධ්‍යයනය	130
	ගොඵි ජනතා	90
	ගොඵි ජනතාව	120
Research reports	Monographs(English)	132
	Monograph (Sinhala)	120

Country Name	No. of Views
Japan	275
Sri Lanka	658
United States	198
Germany	68
Russia	121
France	7
South Korea	32
Côte d'Ivoire	12
EU	22
Australia	19
India	60
Italy	9
United Kingdom	11
China	20
United Arab Emirates	5
Switzerland	10
Philippines	12

Library Promotional Activities

A promotional leaflet on the HARTI library was distributed among university students and visitors of HARTI.

PUBLICATION UNIT

The Publication Unit functions under the purview of the Head, Statistics and Data Processing/ Publication /Library and Geographic Information System Units. Its main functions are editing and publishing research reports, occasional reports, journals, newsletters, bulletins, manuals, brochures and other informational material in all three languages.

In the year 2020, 11 research reports were released in Sinhala and English. Details of the publications are given below.

Research Reports

1. An Assessment of Women Farmer Organizations and Empowerment Needs
2. Access to and Utilizations of Microfinance by Rural Poor in Uva Province
3. Possibilities to Minimize Pesticide Usage in Sri Lanka Paddy Cultivation: An Emphasis on Risk Management
4. Potential of Promoting Rainwater As a Source of Safe Water for Consumption in North Central Province of Sri Lanka
5. Importance of Indigenous Knowledge for Food Security: In relation to paddy cultivation
6. Consumer Buying Behavior and Preference for Liquid and Powdered Milk
7. Government Intervention in Paddy Marketing: Issues in purchasing and post stock management
8. Export Market for Organic Food: Present Status, Constraints and Future scope
9. Ban on Polythene Bags and Lunch Sheets in Sri Lanka: Impact, Challenges and Alternatives
10. Good Agricultural Practices (GAP) In Sri Lanka: Status, Challenges and Policy Interventions
11. උච්ච සහ නැගෙනහිර වනජීවී කලාප ආශ්‍රිත මිනිස්, වනසත්ත්ව ගැටුමේ හි ස්වභාවය, තත්ත්වය සහ වත්මන් ප්‍රවණතා

In addition, the following periodicals were also published.

1. Govi Janatha – Volume 22, First Issue, 2020
2. Govi Janatha – Volume 22, Second Issue, 2020
3. Govi Janatha – Volume 22, Third Issue, 2020
4. Govi Janatha – Volume 21, Fourth Issue, 2020
5. Govi Katayuthu Puwath Hasuna, Volume 43, No. 04 , 2019
6. Govi Katayuthu Puwath Hasuna, Volume 44, No. 1 and 2 , 2020 (uploaded to the website)

Paper articles published in national newspapers during the year.

Article	Newspaper	Date
1. සහල් එළවළු මිල ගැන අනාවැකියක්	Dinamina	07.01.2020
2. Reviving the Granary of the East	Daily news	19.02.2020
3. COVID-19 and Its Impact on Food Supply Chains	Daily News	28.05.2020
4. කෘෂි ඉඩමෙන් වැඩි ඵලදායීතාවකට ඉඩම් ඒකාබද්ධකරණය	Dinamina	10.07.2020
5. යල කන්නයේ වී වලට හොඳ කලක්	Aruna	10.08.2020
6. කෘෂිකාර්මික සංවර්ධනයේ පර්යේෂණ සහ සංවර්ධන ආයෝජන	Dinamina	05.08.2020
7. 37 th Death Anniversary of Hector Kobbekaduwa Tomorrow: He was the Farmers' Friend	Daily News	17.09.2020
8. World Food Day Tomorrow - Food safety a major concern in national food security	Daily News	15.10.2020
9. වවමු... පෝෂණය වෙමු තිරසරව... කොරෝනා වසංගතය හමුවේ...	Divaina	19.10.2020
10. Highlights from Hector Kobbekaduwa commemoration lecture: His vision, A link to Vistas of Prosperity and Splendour	Daily News	20.10.2020
11. Restaging Z-Score Debacle	The Island	13.11.2020
12. Strategies towards self-sufficiency in milk	Daily News	02.12.2020

OTHER ACTIVITIES

Paper Presentations

1. Mr. D.M.A.C. Dissanayake - Research Officer presented three abstracts titled 'Nature and Magnitude of Human Wildlife Conflict and Coping Strategies among Major Grain Farming Communities in Ampara and Moneragala Districts of Sri Lanka.', 'Farmer Perception on the Use of Information and Communication Technology (ICT) for Agriculture: Evidence from Major Potato Cultivating Areas in Sri Lanka' and 'Mobile-based Information System for Managing Pests and Diseases of Paddy in Sri Lanka', for the Symposium organized by the University of Ruhuna on 14th February, 2020.

Journal Articles

1. Mrs. Ruvini Vidanapathirana -Senior Research Officer Submitted the manuscript and accepted the article on "Value Chain Analysis of Pineapple: Evidence from Gampaha District of Sri Lanka" prepared for Sri Lanka Journal of Applied Economics and Business, published by the Department of Agri-business Management, Wayamba University of Sri Lanka.
2. Mr. I.V. Kuruppu – Research Officer published an article titled 'Strengthening Quality Seed Potato Production in Sri Lanka through Viable Public-Private Partnerships (PPP)' in the Applied Economics and Business, 4(1), 33-44, in May 2020.
3. Mr. I.V. Kuruppu – Research Officer published an article titled 'The Paddy Farmers' Channel Choice and Links to the Public and Private Marketing Channels in Sri Lanka' in the Applied Economics and Business, 4(1), 60-70, in May 2020.
4. Mr. I.V. Kuruppu – Research Officer published an article titled 'Study on Potential Alternatives for the Banned Polythene Bags and Lunch Sheets (PBLs) and Exploring the Nature of PBLs Prevailing in the Market in Sri Lanka' in the Sri Lanka Journal of Economic Research, 7(2), 25-45, on 18th September 2020.
5. Mr. I.V. Kuruppu – Research Officer published an article titled 'Mechanics and Prospects of Groundnut Value Chain in Mullaitivu District, Sri Lanka in the Sri Lanka Journal of Economic Research, 8(1), 79-100, on 31st December 2020.
6. Mr. Sangeeth Prasad Fernando - Research Officer published a research paper titled 'Study on Potential Alternatives for the Banned Polythene Bags and Lunch Sheets (PBLs) and Exploring the Nature of PBLs Prevailing in the Market in Sri Lanka' in Sri Lanka Journal of Economic Research 7(2):25-45, DOI: [10.4038/sljer.v7i2.113](https://doi.org/10.4038/sljer.v7i2.113)
7. Mrs. T.P. Munaweera and Mr. M.A.C.S. Bandara - two Senior Research Officers and Mrs. N.M. Dias - Research Officer published an article on 'The Concept of Environmental Leadership: The Case of Solid Waste Management (SWM) in Balangoda Municipal Council in Sri Lanka'. Access Journal of Environmental and Soil Sciences, LUPINE

Publishers. ISSN: 2641-6794, on October 02 2020., DOI: 10.32474/OAJESS.2020.05.000225. Link:<https://lupinepublishers.com/environmental-soil-sciencejournal/pdf/OAJESS.MS.ID.000225.pdf>

8. Mr. M.A.C.S. Bandara and Mrs. G.G. de L.W. Samarasinha - two Senior Research Officers Published an article on 'Factors Influencing Farmers' Adoption of Protected Agriculture: A Case of Vegetable Farmers in Dry Zone Sri Lanka'. Access Journal of Current Investigations in Agriculture and Current Research, LUPINE Publishers. ISSN: 2637-4676 on September 09 2020., DOI: 10.32474/CIACR.2020.08.000300. Link: <https://lupinepublishers.com/agriculture-journal/pdf/CIACR.MS.ID.000300.pdf>
9. Wijesooriya, W.A.N *et al.* (2020), 'The Channel Choice of Paddy Farmers' Links to the Public and Private Marketing Channels in Sri Lanka', *Journal of Applied Economics and Business*, 2020 4(1) 60-70, Wayamba University of Sri Lanka.

Articles for Magazines/ Newspapers

1. Mr. Sangeeth Prasad Fernando - Research Officer published an article titled 'කෘෂිකර්මාන්තයට පණ දිය හැක්කේ කෙසේ ද?'-in the Vidusara Magazine on 08th January 2020 (Page 8), Link: <http://www.vidusara.com/2020/01/08/viduindex.htm>
2. Mr. Sangeeth Prasad Fernando - Research Officer published an article titled 'රාජ්‍යය සේවයට අලුත් සංකල්පයක්...'--in the Divaina newspaper on 14th January 2020 (Page 8., Link: <http://divaina.com/daily/index.php/visheshanga3/37935-2020-01-12-15-41-32>)
3. Mr. W.A.N. Wijesooriya - Senior Research Officer published a newspaper article titled 'Reviving the Granary of the East' in the *Daily News* on 19th February, 2020.
4. Mr. Sangeeth Prasad Fernando - Research Officer published an article titled 'මිහිමට වටය දෙන කඩොලාන'- in the Vidusara Magazine on 19th February 2020 (Page 6) Link:<http://www.vidusara.com/2020/02/19/viduindex.htm>
5. Mrs. Ruvini Vidanapathirana - Senior Research Officer published a feature article titled "COVID-19 and Its Impact on Food Supply Chains" in the *Daily News* on 28th May 2020.
6. Mr. Sangeeth Prasad Fernando - Research Officer published an article titled 'Growing a Nutty Home, Concept to Hamper Coconut Imports 'in the Ceylon Today newspaper on 28th December 2020 (Page 4) Link:<https://uploads.ceylontoday.lk/epapers/files/CT-1-16-2020-12-28-CT.pdf>
7. Mr. I.V. Kuruppu – Research Officer published an article titled 'ශ්‍රී ලංකාවේ පොල් ආශ්‍රිත කර්මාන්ත හා එහි සැකැස්ම' in the Vidusara Magazine on 08th July 2020.
8. Mr. Sangeeth Prasad Fernando - Research Officer published an article titled 'ආහාර සුරක්ෂිතතාවයට අතීතයෙන් පාඩමක්...' in the Vidusara Magazine on 11th March 2020 (Page 7) Link: <http://www.vidusara.com/2020/03/11/viduindex.htm>

9. Mr. Sangeeth Prasad Fernando - Research Officer published an article titled ‘කොරෝනා හමුවේ ‘බලවත්තු කොර වෙන කොට’ ලංකාව මේ තරම්වත් බේරුණේ කොහොමද ?- in the Lankaexpress.com on 25th March 2020, Link: <https://lankaexpress.com/2020/03/25/%e0%b6%9a%e0%b7%9c%e0%b6%bb%e0%b7%9d%e0%b6%b1%e0%b7%8f-%e0%b7%84%e0%b6%b8%e0%b7%94%e0%b7%80%e0%b7%9a-%e0%b6%b6%e0%b6%bd%e0%b7%80%e0%b6%ad%e0%b7%8a%e0%b6%ad%e0%b7%94-%e0%b6%9a%e0%b7%9c%e0%b6%bb/>
10. Mr. Sangeeth Prasad Fernando - Research Officer published an article titled ‘සොබාදහමේ පණිවිඩය නිවැරදිව වටහා ගනිමුද...?’ - in the Vidusara Magazine on 13th May 2020 (Page 9) Link: <http://www.vidusara.com/2020/05/13/viduindex.htm>
11. Mr. Sangeeth Prasad Fernando - Research Officer published an article titled ‘සොබාදහම හා බැඳුණු පෞරාණික ගොවිතැන...’ - in the Vidusara Magazine on 24th June 2020 (Page 12), Link: <http://www.vidusara.com/2020/06/24/viduindex.htm>
12. Mr. Sangeeth Prasad Fernando - Research Officer published an article titled ‘ජීවිත සුවපත් කරවන දේශීය සහල් ගුණ සුවද...’ - in the Vidusara Magazine on 28th October 2020 (Page 10) Link: <http://www.vidusara.com/2020/10/28/viduindex.htm>
13. Mr. Sangeeth Prasad Fernando - Research Officer published an article titled ‘නිරසර කෘෂිකර්මාන්තයකට මග පෑදූ පුරාණ වාරිමාර්ග ශිෂ්ටාචාරය...’ in the Vidusara Magazine on 19th August 2020 (Page 9) <http://www.vidusara.com/2020/08/19/viduindex.htm>
14. Mr. Sangeeth Prasad Fernando - Research Officer published an article titled ‘සිංහරාජ ලෝක උරුමය අහිමි කරගනිමු ද...?’ in the Vidusara Magazine on 09th September 2020 (Page 10), Link: <http://www.vidusara.com/2020/09/09/viduindex.htm>
15. Mrs. R.M.M.H.K. Rambodagedara, Research officer published two articles titled ‘කෘෂි ඉඩමෙන් වැඩි ඵලදායීත්වයකට ඉඩම් ඒකාබද්ධකරණය...’--in the Dinamina newspaper on 10th July, 2020., and ‘Land Resources, Global Food Demand and Food Production’ – in the Daily News newspaper on 08th July, 2020.

Paper Presentations for Conferences

1. Mr. I.V. Kuruppu – Research Officer published an article titled ‘Farmer Perception on the Use of Information and Communication Technology (ICT) for Agriculture: Evidence from Major Potato Cultivating Areas in Sri Lanka for the International Symposium on Agriculture and Environment (p. 160). Matara: University of Ruhuna in February 2020.
2. Mr. I.V. Kuruppu – Research Officer published an article titled ‘Lessons Learned from the Fertilizer Cash Grant Programme Implemented in Sri Lanka. International Symposium on Agriculture and Environment’ (p. 11). Matara: University of Ruhuna in February 2020.

3. Mr. I.V. Kuruppu – Research Officer published an article titled ‘Nature and Magnitude of Human Wildlife Conflict and Coping Strategies among Major Grain Farming Communities in Ampara and Moneragala Districts. International Symposium on Agriculture and Environment (p. 9). Matara: University of Ruhuna in February 2020.
4. Mr. I.V. Kuruppu – Research Officer published an article titled ‘Mobile-based Information System for Managing Pests and Diseases of Paddy in Sri Lanka. International Symposium on Agriculture and Environment (p. 170). Matara: University of Ruhuna in February 2020.
6. Upamalika, K.V.A.M., Umashankar, K & Shantha, W.H.A. 2020. Value Chain Performances and Socioeconomic Factors that Influence Market Supply of Guava in Anuradhapura District – Sri Lanka. Proceedings of the 13th Annual Research Forum of the Sri Lanka Agricultural Economic Association, on 30th January 2020, Colombo, Sri Lanka.
7. Wijesingha, G.G.R., Gunawardena, G.M.W.L., Shantha, W.H.A. & Wattage, P. 2020. Green Human Resources Management in Public and Private Sector Firms in Western Province – Sri Lanka. Proceedings of the SLAAS/SLIC Conference on *From Innovation to Impact*, on 08th December 2020, Colombo, Sri Lanka.

Services for Committees, Seminars & Workshops

1. Mrs. D.T.P.S. Dharmawardhana, Mrs. M.B.F. Rifana and Mrs. R.M.D.H. Rathnayake - Research Officers attended the workshop on ‘Library Services for SLISTINET members’ organized by the National Science Library and Resources Centre of the NSF on 06th March 2020.
2. Mrs. D.T.P.S. Dharmawardhana and Mrs. R.M.D.H. Rathnayake -Research Officers participated for the online workshop on ‘E-Agriculture and Digital Market Platforms’ - Technical Assistance to the Modernization of Agriculture Programme, organized by the Ministry of Agriculture collaboration with HARTI on 25th June 2020.
3. Mr. I.P.P.M. Wijesinghe -Research Officer participated for the Zoom Session International Workshop (virtual) on Evidence-based Trade Policymaking and Analysis: Trade and Trade-policy Indicators - September 14-28, 2020 organized by USAID funded Food Security Policy Research, Capacity, and Influence (PRCI) Innovation Laboratory, MSU, IFPRI, Kasetsart University, and UNESCAP and FAO Regional Food Safety Conference for Asia and the Pacific held from 17 to 26 November 2020.
4. Mrs. D.T.P.S. Dharmawardhana and Mrs. R.M.D.H. Rathnayake -Research Officers participated for the ‘Webinar on Scientific Writing and Publishing Research Work’ - organized by SLAAS and IESL on 29th September 2020.

5. Mrs. D.T.P.S. Dharmawardhana and Mrs. R.M.D.H. Rathnayake -Research Officers participated for the ‘Webinar on International Experience on e-Agriculture to Modernize the Agriculture Sector’ -Technical Assistance to the Modernization of Agriculture Programme, organized by the Ministry of Agriculture on 17th November 2020.
6. Mrs. D.T.P.S. Dharmawardhana -Research Officer participated for the ‘Webinar on ‘Nitrogen Challenges in Agri-food systems: Halve Nitrogen Waste by 2030’ organized by the Lanka Microfinance Practitioners’ Association on 07th December 2020.
7. Mrs. G.V. Norica Aiome - Research Officer participated for the ‘Webinar between FAO and UNEP focus on the Nitrogen Challenges in Agri-food systems: Halve Nitrogen Waste by 2030, held on 07th December 2020.
8. Mrs. M.B.F. Rifana -Research Officer attended the online course on ‘Time Series Modelling and Forecasting’ organized by the SLAAS and SAEA on 21st, 25th, 26th, 29th, 31st August 2020.
9. Mrs. M.B.F. Rifana -Research Officer Created a blog including the information about “Green Gram Cultivation in Sri Lanka”. <https://greengraminfo.blogspot.com/>” - Technical Assistance to the Modernization of Agriculture Programme(TAMAP) and the embassy of Sri Lanka in Thailand in partnership with The Ministry of Agriculture on 14th October 2020.
10. Mrs. R.M.D.H. Rathnayake -Research Officer Created a blog including the information about “Green Gram Cultivation in Sri Lanka”. <https://greengraminfo.blogspot.com/>
11. Mrs. D.T.P.S. Dharmawardhana -Research Officer Created and updated the blog for sesame cultivation (<https://sesamiindustry.blogspot.com/>)
12. Mr. D.M.A.C. Dissanayake - Research Officer participated a certificate course on “Anthropology in Current World Issues” organized by the University of Queensland Via EdeX online platform from 15th March to 15th May, 2020.
13. Mr. D.M.A.C. Dissanayake - Research Officer attended a training Programme on “Participatory Planning for Poverty Reduction and Sustainable Development” organized by the National Institute of rural Development and Panchayati Raj in Hyderabad, India held from 07th January to 03rd February 2020.
14. Mrs. Ruvini Vidanapathirana - Senior Research Officer served as a Committee member for the Technical Evaluation Committee (TEC) of the Health Ministry for the procurement of food commodities for 42 hospitals in Sri Lanka, National Committee on Floriculture Research and Development in Sri Lanka and Sri Lanka Journal of Agrarian Studies of HARTI (English).
15. Mr. I.V. Kuruppu - Research Officer served as a Committee member of the technical committee for price determination and food commodity procurements for Ministry of Health, Nutrition & Indigenous Medicine (2020 to 2021).

16. Mr. I.V. Kuruppu - Research Officer served as a Co-coordinator of organizing and providing information regarding **food** commodities to the official government press (2020 to present).
17. Mrs. G.V. Norica Aiome - Research Officer participated for the National Engineering Research Symposium 2020, session with zoom link organized by the National Engineering Research and Development Centre on 10th of December, 2020.
18. Mr. M.A.C.S. Bandara, Senior Research Officer served as a member of the training Committee for the South Asia Capacity Building Agricultural and Water Pollution Project- Sri Lanka, implemented jointly by the Arthacharya Foundation Sri Lanka, Caritas Switzerland and the United States Government.
19. Mr. M.A.C.S. Bandara, Senior Research Officer served as a member of the National Fertilizer Secretariat Technical Committee to give guidance for importing combined fertilizer mixtures.
20. Mr. M.A.C.S. Bandara, Senior Research Officer served as a member of the Committee of Implementing of Trade Remedy Laws, under the Ministry of Trade.
21. Mr. M.A.C.S. Bandara, Senior Research Officer served as a member of the National Industrial Training Advisory Committee for Developing the Curriculum for Agriculture, Hunting and Forestry year 220/2021. Coordinated by National Apprentice and Industrial Training Authority.
22. Mr. W.H.A. Shantha, Senior Research Officer served as resources person of the Webinar “The FAO Food Safety Conference for Asia and the Pacific: Food Safety in the Era of COVID -19” organized by Food and Agriculture Organization of the United Nations.
23. Mrs. T.P. Munaweerage, Senior Research Officer participated in a series of stakeholder consultation workshops on ‘Evaluation of Overall Policy Coherence and Recommendations for Designing and Implementing an Optimal Policy Package for MRV, SLCR, SLCCS’ organized by The Ministry of Environment and the Institute of Policy Studies 16th December 2020.
24. Mrs. R.M.M.H.K. Rambodagedara, Research Officer served as a resource person of the Webinar on “Assessing the COVID-19 impact of reverse migration on rural communities in CIRDAP member countries”, organized by the Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP) on 08th September 2020.
25. Mrs. G.G. de L.W. Samarasinha, Senior Research Officer served as a member of the Steering Committee of Sri Lanka Water Partnership (Lanka Jalani), an independent nonprofit Association with a goal of promoting Integrated Water Resources Management (IWRM).

26. Mrs. G.G. de L.W. Samarasinha, Senior Research Officer served as a member of the Project Advisory Committee for the South Asia Capacity Building Agricultural and Water Pollution Project- Sri Lanka, implemented jointly by the Arthacharya Foundation Sri Lanka, Caritas Switzerland and the United States Government.
27. Mrs. G.G. de L.W. Samarasinha, Senior Research Officer served as a committee member for the National Committee on Natural Resources Management, Sustainable Agriculture and Climate Change of Sri Lanka Council for Agricultural Research Policy (CARP).

Staff Positions as at 31st December 2020

	No. of Positions as at 31.12.2019	Termination, Resignation during the year	Appointments	No. of Positions as at 31.12.2020
Director	-	-	1	1
Additional Director	-	-	-	-
Heads of Divisions	6	-	-	6
Research Staff	30	-	-	30
Administrative Staff	9	-	-	9
Senior Staff of Library	2	-	-	2
Data Development Bank	2	-	-	2
Computer Unit	1	-	-	1
Publication Unit	5	-	-	5
Statistical Staff	22	1	-	21
Technical Staff	3	1	-	2
Clerical, Secretarial & Parallel Grades	47	2	-	45
Operative & Allied Grades	46	1	-	45
Total	173	5	1	169

STAFF DEVELOPMENT

In 2020, the institute invested Rs. 0.44 million on staff development, from which 10 staff grade officers received local training. Nine staff grade officers participated in foreign training.

The following Research Officers were engaged in Post -Graduate studies:

- | | | |
|------------------------|---|---|
| Mr. H.J.C. Jayasooriya | - | Postgraduate Studies (Master) Australia 08 th January 2019
- 31 st December 2020 |
| Mrs. P.A.J. Champika | - | Postgraduate Studies (Master) Australia 08 th January 2019
- 31 st December 2020 |
| Mr. P.C.J. de Silva | - | Doctoral Degree on “Community Development at the Graduate School” in the Philippines, from 19 th February 2019 - 01 st February 2022. |

Participation at International Training Programmes / Seminars / Workshops / Conferences / Meeting etc.

1. Mr. D.M.A.C. Dissanayake, Research Officer attended the “Participatory Planning for Poverty Reduction and Sustainable Development” held in India, from 07th January to 03rd February 2020.
2. Mr. W.A.N. Wijesooriya, Senior Research Officer attended the CIRDAP – NIRDPR Collaborative International Training Programme on “Natural Resources Management for Sustainable Rural Livelihoods” held in India, from 22nd January to 31st January 2020.

Participation at Local Training – Staff Officers

1. Mr. H.M.J.K. Herath, Research Fellow attended the training programme “Participation in Android Mobile Application Development Course” held in Arthur C. Clarke Institute from 10th to 04th February, 2020.
2. Mr. W.A.N. Wijesooriya, Senior Research Officer attended the programme “Rice Congress 2020 Meeting” held in Rice Research & Development Institute on 12th February, 2020.
3. Mrs. U.D.R. Udari Research Officer attended the training programme “Improving Planning Implementation and Monitoring of Interventions in the Agricultural Sector using the Logical Framework Approach” held in Link Room, Waters Edge Battaramulla from 4th to 7th March 2020.

4. Dr. N.P.G. Samantha, Senior Research Officer attended the seminar “Malaysian Palm Oil Board Technical Seminar (MPOB)” held in Taj Samudra Hotel – Colombo on 19th March, 2020.
5. Mrs. M.T. Padmajani, Senior Research Officer attended the meeting “Awareness Program for Locust Insect Attack Risk in Sri Lanka” held in Disaster Management Centre on 2nd March, 2020.
6. Mr. M.A.C.S. Bandara, Mr. W.H.A. Shantha and Mrs. M.T. Padmajani , Senior Research Officers attended the workshop on “Climate Change Research Forum on Agriculture” held at In Service Training Institute, Peradeniya on 10th March, 2020.
7. Mr. M.A.C.S. Bandara, Senior Research Officer served as a resource person for the series of training programmes about ‘Farmer Awareness Programme on Agriculture-land based Water pollution’ organized by the Arthacharya Foundation in Sri Lanka at their Community Centre. Wellawaya and Maha Illuppalam on 29th February and the 30th June 2020.
8. Mr. I.P.P.M. Wijesinghe, Research Officer attended the Workshop on “Synergies for Empowerment of Kithul based Products Manufactures for Sustainable Industry” held at SLIDA – Colombo 07 on 16th March, 2020.
9. Mrs. G.G. de L.W. Samarasinha, Senior Research Officer attended the workshop on “Preparation of the Country Programme for addressing Climate Change Adaption and Mitigation in Sri Lanka” held at Centre for Banking Studies, Rajagiriya from 17th – 19th March, 2020.
10. Mrs. G.G. de L.W. Samarasinha, Senior Research Officer participated the online activity on “Sri Lankan in International Digital R & D Platforms in Science and Technology” held at National Research Council.

Hector Kobbekaduwa Agrarian Research & Training Institute
Statement of Financial Position as at December 31, 2020

LKR

ASSETS	Notes	2020	2019
Current assets			
Cash and cash equivalents	2	9,743,478.97	15,616,183.49
Receivables-Debtors	3	28,791,748.84	32,520,745.31
Receivables-Deposits	4	613,070.00	613,070.00
Inventories	5	5,355,831.66	5,229,254.96
Prepayments	6	23,779.69	35,067.01
Other current assets	7	144,808.80	23,500.00
		44,672,717.96	54,037,820.77
Non-current assets			
Other financial assets	8	4,125,453.47	3,900,922.99
Infrastructure, plant and equipment	9	19,063,948.06	22,573,958.85
Land and buildings	10	36,782,585.42	37,697,130.51
Work in Progress	11	-	1,539,951.30
		59,971,986.95	65,711,963.65
Total assets		104,644,704.91	119,749,784.42
LIABILITIES			
Current liabilities			
Payables	12	17,207,081.15	19,063,151.63
		17,207,081.15	19,063,151.63
Non-current liabilities			
Employee benefits	13	67,426,150.00	57,562,752.50
		67,426,150.00	57,562,752.50
Total liabilities		84,633,231.15	76,625,904.13
Net Assets		20,011,473.76	43,123,880.29
NET ASSETS/EQUITY			
Government Grant - Capital	14	39,140,539.83	44,971,154.73
Capital contributed by Ministry		-	-
Reserves	15	3,376,906.90	3,376,906.90
Revaluation Reserve		26,450.20	26,450.20
Incentive and Training Fund	16	8,611.38	8,611.38
Accumulated surplus/(deficits)	17	(22,541,034.55)	(5,259,242.92)
Total net assets/equity		20,011,473.76	43,123,880.29

The accounting policies on pages 5 to 8 and Notes on pages 9 to 16 are an integral part of these financial statements. I certify that the financial statements have been prepared in compliance with the requirements of Public Sector Accounting Standards.

Thushari Wedage

ACCOUNTANT

Date

2021/3/31

Malinda Senevirathne

DIRECTOR

The Board of Directors is responsible for the preparation and presentation of these Financial Statements. These Financial Statements were approved by the Board of Directors and signed on their behalf.

M.B. Rohana Pushpakumara
CHAIRMAN

M.B. Rohana Pushpakumara
Secretary
Ministry of Agriculture
No.80/5, "Govijana Mandiraya",
Rajamalwatta Avenue, Battaramulla.

Board Member

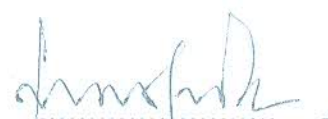
Commissioner General of Agriculture
Department of Agriculture
No. 42, Sir Marcus Fernando
Battaramulla

Hector Kobbekaduwa Agrarian Research & Training Institute
Statement of Financial Performance for the year ended December 31, 2020

LKR

Revenue	Notes	2020	2019
Funds from government Treasury		154,739,750.00	175,000,000.00
Funds from Outsiders for Research and Training Activities		5,161,942.09	9,014,545.91
Capital Grant received for Research and Training Activities		500,000.00	15,694,578.53
Other revenue	18	19,863,438.27	32,082,932.97
Bad Debt over Provision - Scholarship		529,892.00	332,395.78
Total Revenue		180,795,022.36	232,124,453.19
Expenses			
Wages, salaries and employee benefits	19	(160,080,868.48)	(168,108,417.15)
Research and Training Activities		(1,519,380.33)	(15,694,578.53)
Funds to Outsiders for Research and Training Activities		(5,161,942.09)	(9,014,545.91)
Depreciation	9, 10	(5,830,614.90)	-
Other expenses	20	(24,192,864.55)	(41,274,563.20)
Bad Debt under Provision - Other Debtors		(148,287.72)	-
Bank Charges		(62,260.00)	(97,700.00)
Total expenses		(196,996,218.07)	(234,189,804.79)
Surplus / Deficit for the period		(16,201,195.71)	(2,065,351.60)


.....
ACCOUNTANT


.....
DIRECTOR

Hector Kobbekaduwa Agrarian Research & Training Institute
Cash Flow Statement for the year ended December 31, 2020

2019		Notes	2020 (LKR)	
	Cash flow used in operating activities			
(2,065,351.60)	Net deficit / Surplus for the year			(16,201,195.71)
-	Adjustment for			
8,741,252.31	Depreciation		5,830,614.90	
(8,741,252.31)	Amortization		(5,830,614.90)	
10,802,680.00	Provision for Gratuity		10,912,232.50	
(1,190,841.12)	Investment Income		(1,175,853.03)	
37,052.86	Prior year adjustment		(1,080,595.92)	
-	Profit/Loss on Disposal FA Items		18,420.00	
308,502.09	Profit/Loss on Disposal scrap Items		(12,050.00)	
(332,395.78)	Bad debt Provision			8,662,153.55
7,559,646.45	Operating profit before working capital changes			(7,539,042.16)
	Working Capital Changes			
(1,163,773.16)	Receivables		3,728,996.47	
1,469,251.01	Inventories		(126,576.70)	
(10,507.28)	Prepayments		11,287.32	
200,812.40	Other current assets		(121,308.80)	
1,729,061.99	Payables	21	(1,736,135.48)	1,756,262.81
9,784,491.41	Cash used in operating activities			(5,782,779.35)
(5,481,894.00)	Payment of Gratuity			(1,048,835.00)
4,302,597.41	Net cash used in operations			(6,831,614.35)
	Cash Flow from Investing Activities			
-	Receivables			
(209,901.99)	Other financial assets		(224,530.48)	
(6,391,287.37)	Infrastructure, plant and equipment	22	(7,200.00)	
(1,637,646.71)	Land and building		-	
1,962,545.66	palwehera circuit bungalow		-	
1,190,841.12	Investment Income		1,175,853.03	
(1,153,382.94)	Work in Progress	11	-	
0.00	Library book cost recovery for loss books		2,737.28	
(6,238,832.23)				946,859.83
	Cash Flow from Financing Activities			
17,585,000.00	Government Grant - Capital Received		500,000.00	
(15,694,578.53)	Capital Grant received for Research and Training Activities		(500,000.00)	
34,445.53	Incentive Fund Institute Share 40%		-	
(308,502.09)	Sale of disposal items		12,050.00	
8,611.38	Incentive Fund Institute Share 10%		-	
332,395.78	Bad debt Provision			
1,957,372.07	Net cash from financing activities			12,050.00
21,137.25	Net Increase in Cash & Cash equivalents			(5,872,704.52)
15,595,046.24	Cash & Cash Equivalent at the Beginning of Period	I		15,616,183.49
15,616,183.49	Cash & Cash Equivalent at the End of Period	II		9,743,478.97
	Notes:			
	Cash & Cash Equivalent		1	11
			01.01.2020	31.12.2020
15,595,513.49	Cash at bank		15,595,513.49	9,723,478.97
20,670.00	Cash in hand		20,670.00	20,000.00
15,616,183.49	Total		15,616,183.49	9,743,478.97

Hector Kobbekaduwa Agrarian Research & Training Institute
Statement of Changes in Net Assets/Equity
for the year ended December 31,2020

LKR

	Government Grant Capital	Reserves	Revaluation Reserve	Incentive and Training Fund	Accumulated Surplus/(Deficits)	Total
Balance as at January 01,2020	44,971,154.73	3,376,906.90	26,450.20	8,611.38	(5,259,242.92)	43,123,880.29
Funds received from Treasury - Capital	500,000.00					500,000.00
Amotization for the year	(5,830,614.90)					(5,830,614.90)
Capital Grant received for Research and Training Activities	(500,000.00)					(500,000.00)
Prior Year balance transfer					(135,674.92)	(135,674.92)
Prior Year Adjustments					(944,921.00)	(944,921.00)
Income & Expenditure					(16,201,195.71)	(16,201,195.71)
Balance as at December 31,2020	39,140,539.83	3,376,906.90	26,450.20	8,611.38	(22,541,034.55)	20,011,473.76

Notes to the Financial Statements
For the year ended 31st December 2020

1. Accounting Policies

1.1 General

The Financial Statements are prepared under the historical cost basis in accordance with Sri Lanka Public Sector Accounting Standards (SLPSAS) laid down by the Institute of Chartered Accountants of Sri Lanka and the provisions of the Finance Act No.38 of 1971. Adjustments have not been made for inflationary factors in these financial statements. The accounting principles are applied consistently on accrual basis.

1.2 Comparative information

The Accounting Policies have been consistently applied by the Institute with these used in the previous year, Previous year figures have been rearranged wherever necessary to confirm to the current year presentation.

1.3 Events occurring after the Balance Sheet date

All material post Balance Sheet events have been considered and where appropriate adjustments or disclosures have been made in the financial statements.

1.4 Valuation of Assets

(i) Property, Plant & Equipment

The cost of property, plant & equipments are at their cost of purchase or construction together with any incidental expenses thereon. Expenditure incurred for the purpose of acquiring, extending or improving assets of a permanent nature by means of which to carry on the institute or for the purpose of increasing the capacity of the institute has been treated as capital expenditure. Cost of maintenance and repairs are expensed as incurred. The property, plant & equipment are recorded at cost (or revaluation) less accumulated depreciation which is provided for on bases specified below

a) Depreciation is provided on the straight-lines method at the following rates per annum.

Buildings	2 ½ % per annum
Equipment/Furniture	10% per annum
Computer	20% per annum
Welfare Equipment	10% per annum
Books	10% per annum
Vehicles	20% per annum

A full year's depreciation is charged in the year of purchase.

b) Amortization amount is recognized & accounted on other method of LKAS 20

c) Palwehera bungalow building

Palwehera bungalow had been transferred to Divisional Secretarial office - Dambulla as at 01.11.2019 that transfer value was Rs 1,962,545.66. This transfer amount had been settled against the rent amount of Palwehera bungalow that settlement had been approved by the Board of Governors'

1.5 Debtors

i) Scholarship Debtors

Presently six scholarship debtor balances are continued. According to SLIPSAS 08 this year adequate provision has been made on risk and uncertainties.

ii) Other Debtors

Other debtors are stated at the amounts which they are expected to realize. Adequate provision has been made for bad and doubtful debts as follows

- | | | |
|--|---|------|
| 1. Debtors balance over 5 years | - | 100% |
| 2. Debtors balance over 01 to 05 years | - | 5% |

III) Unrecorded Hostel Income

Unrecorded hostel income was Rs. 8,895,470/- that amount was created on hostel operation activities from 2015 may to 2018 July. This amount was identified by special committee that appointed by Director HARTI . This amount was not recorded that decision had been taken by Board of Governors'

IV) Receivable from Divisional Secretarial Dambulla

This amount was included the transfer value of Palwehera bungalow that total transfer value was settled on due rental amount of bungalow. This settlement had been approved by the Board of Governors'

1.6 Stocks

Stocks of consumable items are valued at cost. Other stocks are valued at lower of cost or net realizable value. Cost of the stocks is valued using FIFO method.

1.7 Investment

Fixed Assets deposits had re-invested on same banks.

1.8 Liabilities and Provision

1.8.1 Gratuity

Provision has been made in Financial Statements for Gratuity payable under the payment of Gratuity act No. 12 of 1983.

In the year 2020 gratuity has been calculated base on Basic Salary and Cost of Living Allowance.

1.8.2 Contingent Liabilities

A provision for contingent liabilities has been made on pending court decision.

1.8.3 Contingent Assets

Contingent Assets has been made on pending legal cases for recovering to scholarship debtors that details are given below

Mr.P.D.J.Ananda

Court case is laid due to non availability at the given address. Even though a sum of Rs. 1,250,000.00 has been charged from the guarantors. The balance amount of Rs. 2,759,754.28 is to be recovered from Mr.P.D.J.Ananda.

Mr.M.S.Gowrisanker

His address has not been found to send the letter of demand. However, the guarantors have already paid Rs. 1,250,000.00. The balance amount of Rs. 3,634,110.07 is pending to recover from Mr.M.S.Gowrisanker.

Dr. Gamini Wickramasinghe

He has appealed two times. A judgment received in favour of the HARTI. Finally a letter has sent to the Attorney General Department for Writ of Certiorari. Follow up fiscal action in progress.

Ms.R.Athukorala

Ms.R.Athukorala had a bond value of Rs. 2,181,521.00. The guarantors paid a sum of Rs.1,250,000.00. The balance amount of Rs 931,521.00 could not be recovered. Her address has not been found to send the letter of demand.

Mr.P.D.R.Kumarasiri

The value of Mr.P.D.R.Kumarasiri's bond is Rs. 499,302.00. The guarantors have been charged Rs. 166,436.00. The balance of Rs. 332,866.98 has to be recovered from other two guarantors decided by the court. However, the address of one guarantor cannot be found.

Ms.A.C.K.Sepala

Ms. A.C.K.Sepala has a bond value of Rs. 1,249,641.11. A court judgment ordering to pay a sum of Rs. 1,200,000.00 has been received. She has settled Rs. 900,000.00 to date.

1.8.4 Defined Contribution Plan

Institute contributes 15% and 3% of employees monthly salary to Employee's Provident Fund (EPF) and Employee's Trust Fund (ETF) respectively. These contributions are recognized as expenses in the Statement of Financial Performance on current circulars issued by Department of Management Service.

1.9 Statement of Financial Performance

The statement of financial performance is stated after;

- a. Providing bad and doubtful debts and all expected future expenses in day - to- day operation of the institute and maintaining the property plants and equipment in a state of efficiency.
- b. Revenues are included: Funds of Government Treasury, income of hostel charges, conference hall charges & others.

2.0 Transport and Printing cost

Transport and printing expenditures have to be accounted for all divisions and research and training. Therefore that expenditure has been valued at an approved rate and that cost is adjusted to a percentage between those relevant expenditures.

2.1 Capital Grants received for Research and Training Activities

The treasury was allocated the funds for research & training activities on head of government capital grants. According to LKAS -38, Research & Training cost can be treated as Intangible assets but institute's research & training cost can't be treated as intangible assets. Because output of institute's research was not comply with requirements of LKAS 38. Therefore total research & training cost are debited to the "statement of financial performance" that cost treated as recurrent expenses and above mentioned government capital grants also transferred to the institute's "statement of financial performance" for the year.

Covid -19 pandemic situations had been affected our research & training activities during the year.

2 Cash and cash equivalents

	2020	2019
Cash in hand	20,000.00	20,670.00
Cash at bank - A/c No 2323292	8,200,359.31	8,463,976.86
Cash at bank - A/c No 2323293	1,045,856.87	2,446,820.21
Cash at bank - A/c No 2323315	197,345.25	203,895.78
Cash at bank - A/c No 2323317	279,917.54	4,480,820.64
	9,743,478.97	15,616,183.49

3 Receivables

Staff Debtors

Housing Loan	281,912.78	401,321.55
Consolidated loan	23,020,739.13	22,894,203.34
Festival Advance	5,425.12	6,675.12
Auditorium Income Receivable	13,375.00	509,875.00
Hostel Income Receivable	5,113.75	907,145.07
Scholarship debtors	12,874,881.49	13,486,273.49
Salary Advance	-	-
Special Advance (Books)	21,600.00	-
	36,223,047.27	38,205,493.57

Other Debtors

Investment income receivable	32,041.16	50,612.38
Receivable from - Ms.B.A.D.S.Bamunuarachchi	-	48,000.00
Recoverable from resigned employees	633,881.72	564,378.12
Recoverable from medical insurance	200.00	100.00
Debtors - Mobitel Pvt Ltd	334,817.72	250,002.51
G-97- Climate -smart crops and mechanization scaling	-	325,924.33
Receivable from Digi House	-	250.00
Recoverable from Metropolitan Office (Pvt) Ltd	70.00	70.00
Receivable from Ministry of Public Administration	44,800.00	117,800.00
R-481 Jaffna Lagoon and Contribution of the lagoon to the livelihood og	111,921.59	111,921.59
Receivable from SMIB	39,866.42	47,028.07
Divisional secretariat Dambulla	962,545.66	1,962,545.66
R-540 Building the basis for implementing the "Save and Grow" Approach Regional strategies on sustainable and climate resilient intensification of cropping systems	-	809,686.06
	2,160,144.27	4,288,298.72
	38,383,191.54	42,493,792.29
Less:		
Provision for Bad & Doubtful Debtors	(667,829.73)	(519,542.01)
Provision for scholarship	(8,923,612.97)	(9,453,504.97)
	28,791,748.84	32,520,745.31

4 Receivables

Deposits

Fixed - Caterer	70,000.00	70,000.00
Sundry - Sri Lanka Telecom (Internet facility)	3,125.00	3,125.00
Sundry - Post Master General	24,945.00	24,945.00
Sundry - Colombo Gas and Water Co.	4,750.00	4,750.00
Sundry - Water supply and Drainage Board	500.00	500.00
Sundry - Celltel Lanka Ltd.	3,500.00	3,500.00
Sundry - Ceylon Electricity Board	406,250.00	406,250.00
Sundry - Fuel Deposit	100,000.00	100,000.00
	613,070.00	613,070.00

LKR

5 Inventories	2020	2019
Publication and journals	2,801,649.00	2,758,249.00
Consumables	1,444,485.66	1,538,084.96
Sales Center	1,109,697.00	932,921.00
	<u>5,355,831.66</u>	<u>5,229,254.96</u>

6 Prepayments		
Service Agreement Photocopy	-	10,500.00
Building Insurance	23,779.69	24,567.01
	<u>23,779.69</u>	<u>35,067.01</u>

7 Other current assets		
Purchase Advance	144,808.80	23,500.00
	<u>144,808.80</u>	<u>23,500.00</u>

8 Other financial assets		
Call Deposits	1,500.00	1,500.00
Fixed Deposits at State Mortgage & Investment Bank	1,500,000.00	1,500,000.00
Fixed Deposits at State Mortgage & Investment Bank-Housing Loan Scheme	2,623,953.47	2,399,422.99
	<u>4,125,453.47</u>	<u>3,900,922.99</u>

9 Infrastructure, plant and equipment

Schedule of Depreciation of Assets - December 31,2020

LKR

Particulars	Cost as at 01.01.2020	Additions / (Disposal) during the Year 2020	Total Cost as at 31.12.2020	Acc/Dep as at 01.01.2020	Dep.for the year 2020	Accu/Dep. ended 31.12.2020	Net Value as at 31.12.2020
Equipment/Furniture	60,220,524.97	973,901.30	61,194,426.27	45,649,318.23	2,843,979.20	48,493,297.43	12,701,128.84
Computer Installation	33,981,853.30	7,500.00	33,989,353.30	29,548,472.53	832,308.14	30,380,780.67	3,608,572.63
Motor Vehicles	71,888,647.00	-	71,888,647.00	71,046,710.80	268,816.40	71,315,527.20	573,119.80
Books	15,997,537.35	(2,737.28)	15,994,800.07	13,226,423.21	587,251.07	13,813,674.28	2,181,125.79
Welfare Equipment	3,734.55	-	3,734.55	3,733.55	-	3,733.55	1.00
Total	182,092,297.17	978,664.02	183,070,961.19	159,474,658.32	4,532,354.81	164,007,013.13	19,063,948.06

10 Land and buildings

Schedule of Depreciation of Assets - December 31,2020

Particulars	Cost as at 01.01.2020	Additions/ (Disposals) during the Year 2020	Total Cost as at 31.12.2020	Acc/Dep as at 01.01.2020	Dep.for the year 2020	Accu/Dep. ended 31.12.2019	Net Value as at 31.12.2019
Land	1,857,387.00	-	1,857,387.00	-	-	-	1,857,387.00
Buildings	55,946,549.56	383,715.00	56,330,264.56	20,106,806.05	1,298,260.09	21,405,066.14	34,925,198.42
	57,803,936.56	383,715.00	58,187,651.56	20,106,806.05	1,298,260.09	21,405,066.14	36,782,585.42

11 Work in progress

Opening Balance 01.01.2020		1,539,951.30
(Less): Transfer to equipment A/C	1,036,301.30	
Transfer to Building A/C	383,715.00	
Adjustment to the creditor A/C		
Multimedia Projector (PO 223)	115,000.00	
Microphone price diff.(PO 206)	4,935.00	1,539,951.30
Closing Balance 31.12.2020		<u><u>-</u></u>

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Payables		2020	2019
12	Accrued expenses	9,281,062.21	8,621,848.58
	Payable Research & Training Expenses	470,300.00	1,216,781.39
	Tender deposit refundable	139,462.20	133,462.20
	Canteen deposit refundable -Upatissa Paranamana	50,000.00	50,000.00
	Salary Advance	-	-
	Unpaid expenditure	188,930.44	267,135.51
	Payable to Resigned Employees	189,150.61	189,150.61
	Stamp Fees Payable	13,550.00	16,225.00
	Retention	136,526.06	136,526.06
	Creditors	601,748.15	1,720,160.05
	Welfare Society	11,890.00	-
	Gratuity Payable	126,912.50	126,912.50
	Payable to Ministry	94,358.05	94,358.05
	Management Development Book	8,000.00	10,000.00
	Special Advance	-	-
	Payable to tea research institute	-	84,000.00
	Payable to Mr.Narayanasamy	10,800.00	9,000.00
	Received in advance-Hostel & Auditorium Income	26,768.50	43,528.00
	Funded Project Payable	13,712.11	-
Creditors against projects			
	Rapid food Security & need Assessment	7,774.28	7,774.28
	R-512 Capacity Development of Agrarian Research -Technology personnel in Sri Lanka on Global Change and sustainability	22,831.18	22,831.18
	R-530 Baseline study for strengthening value chain for Banana,Mango and pineapple crop in selected regions in Sri Lanka	2,518,787.32	2,716,082.09
	R-535 Addressing climate change impacts of Marginalized agricultural communities living in the Mahaweli river basin of Sri Lanka	440,981.34	440,981.34
	Service Contract 03-2017	245,901.88	245,901.88
	R-559 Energy/water baseline assessment for drip irrigation technologies for various crops in Sri Lanka	695,062.86	695,062.86
	R-561 Building evidence on the impact of improved agricultural extension services on rice production in Anuradhapura district Sri Lanka	89,594.82	1,799,880.00
	Service Contract 01-2019	527,500.00	415,550.00
	Service Contract 01-2020	488,404.22	-
	R-540 Building the basis for implementing the "Save and Grow" Approach Regional strategies on sustainable and climate resilient intensification of cropping systems	807,072.42	-
		17,207,081.15	19,063,151.63
Employee benefits			
13	Balance as at January 01,	57,562,752.50	52,241,966.50
	Payments during the year	1,048,835.00	5,481,894.00
	Provision for the year	10,912,232.50	10,802,680.00
	Balance as at December 31,	67,426,150.00	57,562,752.50
Government Grant - Capital			
14	Balance as at January 01,	44,971,154.73	51,821,985.57
	Capital Contribution During the year	500,000.00	17,585,000.00
	Capital Grant received for Research and Training Activities	(500,000.00)	(15,694,578.53)
	Amortization for the year	(5,830,614.90)	(8,741,252.31)
	Depreciation adjustment vehicle purchased	-	-
	Balance as at December 31,	39,140,539.83	44,971,154.73
Reserves			
15	Project Capital Fund	-	-
	Capital Reserve	1,675,000.00	1,675,000.00
	Incentive Fund - Institute share	1,701,906.90	1,701,906.90
		3,376,906.90	3,376,906.90
Incentive and Training Funds			
16	Incentive Fund 10% from project	8,611.38	8,611.38
		8,611.38	8,611.38

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Accumulated deficits

	2020	2019
17 Balance as at January 01,	(5,259,242.92)	(3,230,944.18)
Adjustment on revaluation reserve vehicle purchased on institute funds	-	-
Vehicle purchased on treasury grant received 2014 depreciation adjustment	-	-
Prior year adjustment - transfer	(135,674.92)	-
Prior year adjustment - for the year	944,921.00	37,052.86
Expenditure over income as at December 31,	(16,201,195.71)	(2,065,351.60)
Balance as at December 31,	(22,541,034.55)	(5,259,242.92)

Other Revenue

18 Hostel charges	4,779,071.00	13,303,731.02
Conference hall charges	6,015,100.00	15,997,250.00
Income From Mobitel Customer service	84,815.21	120,200.77
Sales of publications	21,095.00	80,309.00
Interest on investments	232,900.85	256,888.99
Interest on staff loan	942,952.18	933,952.13
Recurrent contribution from projects	129,975.24	846,932.77
Bungalow fees and room rent	99,078.00	91,619.95
Palwehera Room rent	-	28,950.00
Computer income	308.00	-
Manpower Income	838,872.39	64,002.43
Other income	5,896,770.40	129,975.91
Supplier's Registration	-	177,000.00
Advertising Income	19,450.00	32,250.00
Excess Stock	-	19,870.00
Questionnaire Editing Data Entering cleaning & analysis Income	240,000.00	-
Reporting writing (Interim, data & Final Report) Income	450,000.00	-
Compile Background material on the Rice & OFC Sectors & draft a comprehensive background document Income	50,000.00	-
IncomeContribution to econometric analysis & Interpretation Income	48,000.00	-
Scrap Disposal	12,050.00	-
Tender Fees	3,000.00	-
	19,863,438.27	32,082,932.97

Wages, salaries and employee benefits

19 Salary -Permanent staff	92,684,649.23	86,888,993.04
Salary - Investigators	8,328,830.00	12,932,062.53
Cost of Living Allowance,Special Allowance & other	24,739,048.30	31,451,303.22
EPF	17,513,688.15	17,485,167.32
ETF	3,502,736.83	3,497,032.27
Overtime	2,399,683.47	5,051,178.77
Gratuity	10,912,232.50	10,802,680.00
	160,080,868.48	168,108,417.15

	2020	2019
Other expenses		
20 Local subsistence & Local transport	972,663.05	1,746,142.18
Foreign Travel Allowance	-	67,772.77
Stationery and office requisites	807,231.78	3,034,873.17
Fuel and lubricants	424,812.30	1,212,026.39
Uniforms	163,108.40	415,708.42
Vehicle repairs	725,810.67	1,553,772.54
Maintenance of Building	280,962.90	2,048,644.33
Plant machinery and equipment repairs	1,095,475.24	1,835,323.58
Telephone charges	3,795,190.74	3,295,188.47
Electricity	3,145,444.20	5,162,274.02
Water bills	495,343.09	1,156,255.88
Taxes to local authorities	579,456.00	579,456.00
Postal charges	250,100.00	609,870.00
Transport	347,939.96	594,560.00
Technical Advice for Vehicles	60,000.00	90,000.00
Technical Advice for Construction	30,000.00	90,000.00
Newspapers	125,080.00	271,796.00
License and insurance	802,103.77	1,061,870.63
Security charges	5,053,160.00	3,036,000.00
Cleaning services	726,644.02	1,240,080.49
Laundry services	225,645.00	435,520.00
Audit fees	747,606.00	986,000.00
Medical Insurance	978,500.00	1,015,500.00
Canteen charges	75,410.00	109,034.00
Miscellaneous expenses - Others	138,602.20	368,447.00
Legal charges	102,000.00	591,716.00
Welfare	98,159.00	200,475.00
Advertisement	18,360.00	1,908,253.01
Interview charges	-	68,801.00
Board of governors	83,015.00	608,435.00
Printing & Publication	823,768.80	1,915,540.02
Dissemination of information	395,575.00	669,675.00
Cost of Sales - Publications	21,449.00	80,059.00
Withholding Tax	-	13,881.79
Audit & Mgt Committee	60,972.00	63,721.00
Staff Development	444,566.43	2,101,080.92
EB Examination Fees & Other	-	478,500.00
Translation Fees	50,290.00	150,547.50
Technical Advice for Equipment & Others	30,000.00	89,500.00
Loss on printed books	-	1,560.00
Stock shortage	-	8,200.00
Scrap Item Disposal	18,420.00	308,502.09
	24,192,864.55	41,274,563.20

Consumable Scrap Disposal Loss

20.1 Cost	-	314,402.09
Revenue	-	(5,900.00)
Scrap Disposal item loss (consumable)	-	308,502.09

21 Payable cash flow Note

Opening Balance 01.01.2020	19,063,151.63
Closing Balance 31.12.2020	17,207,081.15
Difference	(1,856,070.48)
Non Cash effected-Adjustment creditor A/C	119,935.00
	(1,736,135.48)

Infrastructure, plant and equipment

22 Computer router purchasing	7,500.00
(-) Cash Counting Machine sales price	(300.00)
	7,200.00

Chairman,

Hector Kobbekaduwa Agrarian Research and Training Institute.

Report of the Auditor General on the Financial Statements and Other Legal and Regulatory Requirements of the Hector Kobbekaduwa Agrarian Research and Training Institute for the year ended 31 December 2020 in terms of Section 12 of the National Audit Act, No. 19 of 2018.

1. Financial Statements

1.1 Qualified Opinion

The audit of the financial statements of the Hector Kobbekaduwa Agrarian Research and Training Institute for the year ended 31 December 2020 comprising the statement of financial position, statement of financial performance, statement of changes in equity and as at 31 December 2020 and cash flow statement for the year then ended, and notes to the financial statements, including a summary of significant accounting policies, was carried out under my direction in pursuance of provisions in Article 154(1) of the Constitution of the Democratic Socialist Republic of Sri Lanka read in conjunction with provisions of the National Audit Act No. 19 of 2018 and Finance Act No. 38 of 1971. My report to Parliament in pursuance of provisions in Article 154 (6) of the Constitution will be tabled in due course.

In my opinion, except for the effects of the matters described in the basis for Qualified Opinion section of my report, the accompanying financial statements give a true and fair view of the financial position of the Hector Kobbekaduwa Agrarian Research and Training Institute as at 31 December 2020 and of its financial performance and its cash flows for the year then ended in accordance with Sri Lanka Public Sector Accounting Standards .

1.2 Basis for Qualified Opinion

1.2.1 Sri Lanka Public Sector Accounting Standards

In terms of paragraph 48 of Sri Lanka Public Sector Accounting Standard 01, assets and liabilities, and revenue and expenses shall not be offset unless required or permitted by Standards. However, a sum of Rs.1,962,545 to be reimbursed from Dambulla Divisional Secretary for renovation and maintenance activities of the Pelwehera Circuit Bungalow

carried out in preceding years, had been offset and accounted against the lease rental of Rs.1,000,000 payable from 12 December 2011 to 12 December 2019 for the said circuit bungalow. Further, an effective measure had not been taken to reimburse the said amount.

1.2.2 Accounting Deficiencies

Even though it was mentioned in the letter No.10/01/82(v) dated 11 February 2021 addressed to the Additional Secretary to the Prime Minister by the Registrar for providing room facilities to security officers of the Prime Minister's Office from 08 October 2020 to 31 December 2020, the said amount had not been brought to account as an income receivable in the year under review. As such, revenue from hostels and revenue receivable had been understated by the same amount.

I conducted my audit in accordance with Sri Lanka Auditing Standards (SLAuSs). My responsibilities, under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of my report. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my qualified opinion.

1.3 Other information included in the Annual Report 2020 of the Institution

The information which is expected to forward me after the date of this audit report, not included in the financial statements and my audit report but included in the Annual Report 2020 of the Institution is intended as other information. The management should be responsible for the other information.

The other information not disclosed in my opinion on the financial statement and I am not express any assure or opinion on that matter.

My responsibility on the financial statements in my audit is to read the above mentioned identified information when received and considering whether it is not adjusted as quantitatively with the financial statements or according to my knowledge obtained other way when it done.

When the Annual Report 2020 of the Institute reads, if I conclude there are quantitative errors shown in that document, those matters should communicate to the controlling parties for the corrections. If there are further more un corrected errors shown, those will

be included in the report tabled in parliament by me in due course in terms of 154(6) of the constitution.

1.4 Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation of financial statements that give a true and fair view in accordance with Sri Lanka Public Sector Accounting Standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Institute's ability to continue as a going concern, disclosing matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Institute or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Institute's financial reporting process.

As per Sub-section 16(1) of the National Audit Act, No. 19 of 2018, the Institute is required to maintain proper books and records of all its income, expenditure, assets and liabilities, to enable annual and periodic financial statements to be prepared of the Institute.

1.5 Auditor's Responsibility for the Audit of Financial Statements

My objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Sri Lanka Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or

in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Sri Lanka Auditing Standards, I exercise professional judgment and maintain professional scepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentation or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Institute's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the management.
- Conclude on the appropriateness of the management's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Institute's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Institute to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with those charged with governance regarding, among other matters, significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

2. **Report on Other Legal and Regulatory Requirements**

- 2.1.1 The financial statements presented is consistent with the preceding year as per the requirement of section 6 (1) (d) (iii) of the National Audit Act, No. 19 of 2018.
- 2.1.2 The financial statements presented includes all the recommendations except for the observations shown in paragraph 1.2.1,2.2.1(a) ,(b) 2.2.3(e) ,2.3 (b) (f) ,(g) in this report made by me in the previous year as per the requirement of section 6 (1) (d) (iv) of the National Audit Act, No. 19 of 2018.
- 2.2 Based on the procedures performed and evidence obtained were limited to matters that are material, nothing has come to my attention.
- 2.2.1 to state that any member of the governing body of the Institute has any direct or indirect interest in any contract entered into by the Institute which are out of the normal cause of business as per the requirement of section 12 (d) of the National Audit Act, No. 19 of 2018 .
- 2.2.2 to state that the Institute has not complied with any applicable written law, general and special directions issued by the governing body of the Institute as per the requirement of section 12 (f) of the National Audit Act, No. 19 of 2018 except for the following observations.

Reference to Laws, Rules, Regulations etc.	Non-compliance
(a) Financial Regulation 756	A survey on library books had not been carried out in the year 2020 and reports thereon had not been furnished to Audit.
(b) Public Enterprises Circular No.PED 55 dated 14 December 2010	Only 02 Audit Committee meetings had been held in the year 2020.

- 2.2.3 to state that the Institute has not performed according to its powers, functions and duties as per the requirement of section 12 (g) of the National Audit Act, No. 19 of 2018 .
- 2.2.4 to state that the resources of the Institute had not been procured and utilized economically, efficiently and effectively within the time frames and in compliance with the applicable laws as per the requirement of section 12 (h) of the National Audit Act, No. 19 of 2018 except for the following observations.
- (a) The bio gas unit established in the Head Office by incurring a cost of Rs.1,031,020 during the period of 2012-2015 had been in operative from the year 2016 and a balloon had been purchased by paying an advance amounted to Rs.22,500 in the year 2018 thereon. However, the said balloon had not been established due to other technical errors of the unit where as the total expenditure of the unit as at 31 December 2020 amounted to Rs.1,053,520. Repairing of the unit had not been done for a long time and as a result of that the apparatus of that unit has become in operative and it had become an unusable condition.
 - (b) Seven research projects commenced by the Institute by spending a sum of Rs.4,453,000 in the years 2015,2016,2018 and 2019, had not been completed even as at 31 December 2020, even spent a period from 01 year to 05 years. As a result of this condition, the relevant recommendations had not been received to the required parties within due period through the research programmes carried out on timely requirements.
 - (c) Even though a sum of Rs.8,366,000 had been spent for 11 research projects which were commenced in the year 2019 and to be completed in the year 2020 and included in the Action plan in the year 2019, those projects had not been completed even as at 31 December 2020 and the reports had not been published.
 - (d) It was observed that identified programmes for finding out of researches generated from conducting research programmes which is the foremost task of the Institute and delivery of modern knowledge to the required parties had not been properly implemented annually or once in such time period and allocation of provisions by the Action Plan for publishing research papers in the years 2017,2018 ,2019 and 200 had not been done.
 - (e) Eighty two asbestos sheets valued at Rs.123,220 purchased for the repairing of the roof of the new building of the Institute in the year 2017 had been stored in the Institute in an unprotected manner and most of those had been destroyed as at the year under review.

2.3 **Other matters**

- (a) The Annual performance Report of the year 2019 had not been tabled in parliament.
- (b) A sum of Rs.12,874,881 should be recoverable from foreign scholar debtors remaining prior to the year 2002 as at 31 December 2020 and it had been failed to recover the said balance.
- (c) Even though the Attorney General had been informed on 03 January 2006 to institute a lawsuit, legal action had not been taken against the person, M.S.Gauri Shankar, Research Officer who is a foreign scholar debtor due to lack of overseas address. As such, no money out of the sum of Rs.3,634,110 recoverable from him as at 31 December 2019 could not be recovered even during the year 2020 and the Institute had not drawn its attention to find out the said address.
- (d) It was observed in audit that out of the total debtors balance of Rs.25,508,310, other debtors balance of Rs.610,215 except for foreign scholar debtors had remained unrecovered over a period of 05 years as at 31 December 2020. It was further observed in audit that the said loan balance included a sum of Rs.482,304 which was recoverable from employees.
- (e) It was observed in audit that the creditors balance of Rs.17,207,081 payable as at 31 December of the year under review included a balance of Rs.626,737 remained unsettled over a period of 05 years.
- (f) Action had not been taken to recover the sum amounting to Rs.8,895,470 recoverable from the period from September to July 2015 for rental of rooms of the hostels for the drivers of the Minister of Agriculture.
- (g) The legal ownership of the vehicle No.40-3933 which is handed over to the Institute by the Food and Agriculture Organization of United Nations has not been vested to the Institute and it has been misused from the year 2015.

W.P.C Wickramaratne
Auditor General.

Reply relevant to the Auditor General's report as per the Section 12 of National Audit Act No 19 of 2018 on the financial Statement and other rules and regulatory requirement of Hector Kobbekaduwa Agrarian research and Training Institute as at 31st December 2020

1.2.1 Sri Lanka Public sector Accounting Standards

Written requests have been forwarded to Divisional Secretary, Dambulla to reimburse this amount. However they have not granted their consent by the letter no. 5/3/9/3/28 dated 11/08/2020. Again, the letter no. AD/2/5/0/08 dated 19.04.2021 has been forwarded to Divisional Secretary with additional details. Further, the necessary steps will be taken to recover this sum.

1.2.2 Accounting defects

Since the preparation of bills relevant to this provision of rooms to the officers of Prime Minister's office has done during year 2021, accounting was not possible in year 2020. Adjustment relevant to this income has been done in year 2021.

2.

2.2.2 (a) Draft report has been prepared for the Library books survey conducted in year 2020. Final report will be submitted in future for auditing.

(a) Agreed.

Due to the Corona pandemic situation in year 2020, only 02 Audit and Management committee meetings have been conducted. However in the first Quarter of the year 2021 two Audit and Management committee meetings have been held. Steps are being taken to conduct relevant meetings online, even under this pandemic condition in year 2021.

2.2.4 (a) Agreed

Actions have been taken to settle this advance. Further, the Director has been appointed a committee to take actions as per the financial regulation 104 on this Bio gas unit and future action will be taken under the recommendation of the committee.

(b) Progress of the seven researches conducted during year 2009 to 2015, has been stated as follows and out of that, one research report has been published and distributed.

Year	Research No	Present progress
2015	R-500	Research report has been completed and the cover page is being designed
2016	R-517	Research report has been completed and the cover page is being designed
2016	R-511	The report has been forwarded to print.
	R-513	The report has been forwarded to obtain the comments of external reviewers
	R-542	Research report has been completed and the cover page is being designed
2018	R-534	Research report has been published and distributed.
2019	R-551	The report has been forwarded to obtain the remarks of the Additional Director.

- (c) Current level of progress of the 11 research projects included in to the Action Plan of the year 2019 has been stated below.

Project number	Present of progress
R-545	Editing is in progress.
R-547	Editing is in progress.
R-548	Proof reading has been finalized
R-549	Editing has been completed.
R-550	The report has been forwarded seeking the comments of external reviewers
R-552	Editing is in progress
R-553	The report has been forwarded to obtain the remarks of the Additional Director.
R-554	Necessary steps are being taken to obtain the comments of external reviewers
R-555	Comments of external reviewers have been obtained and the report is being upgraded.
R-556	Necessary steps are being taken to obtain the comments of external reviewers
R-560	Editing is in progress

- (d) The last Research Colloquium which is done annually by the institute has been conducted in the year 2015. Even though invitations were sent to various parties' participation was less than 20%. Therefore after 2016 various programs were conducted to distribute the new knowledge, new researches and innovations to needed parties.

- Ex.- sharing of the new knowledge, new researches and with various parties by aggregating researches relevant to similar fields.
 - I. Conducting of one research session on the whole of all the researches done related to Mahaweli colonists.
 - II. Study on the identification of alternative for polythene, lunch sheets and shopping bags.
 - III. Challenges and trends in implementing SLGAP (SRI Lanka Good Agricultural Practices) in Sri Lankan fruits and vegetable cultivation.
 - IV. Study on animal-human conflict associated with Uwa and Eastern wild life zones
- Aggregation of new knowledge and researches through the participation of research officers representing various committees to be included in the future programs of relevant fields.

Provision has not been allocated to publish the research reports in years 2017, 2018, 2019 and 2020 and the allocation has been done under the expenditure head “Seminar, Workshop, Public Lecture”

- (e) Even though the tenders/ quotations have been called at many occasions in last year to renovate this new hall, any tender has not been submitted in this regard. Therefore the proposed renovations have been delayed. Activities will be taken for the procurement of this renovation and use these sheets in future.

- 2.3 (a) Annual report of the year 2019 has been forwarded to State Ministry of Agriculture on 04/03/2021, seeking the approval of the Cabinet of Ministers. Owing to the Covid 19 pandemic situation prevailed during year 2020 preparation of Annual reports and the obtaining the approval of the Control Board was delayed. Necessary steps will be taken to table the annual report for the year 2019 in Parliament, as soon as the Cabinet of Ministers approval is received.
- (b) An amount of Rs. 12,874,881.49 has to be recovered by the foreign scholarship beneficiary debtors of the institute as at 31st December 2020. Following progress could be obtained since the institute has paid special attention on foreign scholarship beneficiary debtors during past ten years, deploying a tactful approach in this regard.

year	No of scholarship beneficiary debtors	Amount to be recovered (Rs)
2012	12	27,388,114.85
2020	6	12,8274,881.49

Accordingly, the institute has been able to settle 06 scholarship debtors by recovering an amount of Rs. 14,562,985.00 from year 2012 to 2020

In this situation the amount recoverable at the beginning of the year 2020 was Rs. 13,486,273.49. As a result of strategic action taken by the institute in year 2019 an amount of Rs. 14,501,392.00 could be recovered in year 2020 from a scholarship beneficiary debtor, Mrs. S D Abeyratna.

- (c) Since the present address of the research officer Mr. M S Gauri Shankar could not be traced, the Letter of Demand informing of the Court case, has not been sent. Despite different procedures were taken by the institute to finding his address had not been successful. Actions taken by the institute are as follows.

Year	Actions taken
2013	Forwarding all the details of scholarship beneficiary debtors to the Department of Immigration and Emigration through the Ministry of Agriculture
2015	Forwarding of letters to the Crime Investigation Department (CID) and to Australian High Commission of Sri Lanka through the Ministry of Agriculture. In this regard, the CID has informed that this issue does not come under their scope of duties
2019	Publishing a notice regarding all the details of scholarship beneficiary debtors and the amount of their debt in the news papers of all three languages, Sinhala, English and Tamil.
2019	Requesting details about scholarship debtors from Sri Lankan High Commission of Australia through letters and telephone calls contacting Deputy High Commissioner of the High Commission by Assistant Registrar (Program). They explained that it is difficult to obtain their present addresses as they have obtained the Australian citizenship by now.

- (d) Outstanding loan balances of the debtors other than the scholarship beneficiary debtors continued for more than a period of five years, is as listed below..

Festival Advance	Rs. 5,425.12
Due Hostel income	Rs. 5,113.75
Due Conference hall income receivable	Rs. 10,875.00
Amount receivable from the employees left the institute	Rs.476,879.87
Amount receivable from the project R-481	Rs.111,921.59
	Rs.610,215.33

- Actions have been taken to recover the recoverable balances of the festival advance at the beginning of the year 2021.
- R-481 is the amount to be recovered e from the project on behalf of the service provided to the Jaffna lagoon and the contribution provided to the livelihood of the residents of villages nearby. The Audit query AGL/D/ADD/02/20/02 has been referred on this matter. The relevant reply has been forwarded to the Auditor General. This will be forwarded to the Audit and management committee which will be held in future for further instructionsand, actions will be taken accordingly.
- Balances continued for more than five years and to be recovered from the employees who left the institute are as follows.

01	Mr. M G M Rashak	Rs. 212,819.90
02	Mr. H K S Premalal	Rs. 18,732.35
03	Mr. L K Jayasekara	Rs. 29,086.38
04	Mr. Rangana Athukorala	Rs. 19,474.50
05	Mr. A M D N Thennakoon	Rs. 196,767.29
		Rs. 476,879.87

I. Mr. M G M Rashak - Rs. 212,819.90

Mr. M G M Rashak is a guarantor of a foreign scholarship beneficiary debtor and his address be found. Legal actions are being taken against him under the Law of foreign scholarship beneficiary debtors.

II. Mr. H K S Premalal - Rs. 18,732.35

The amount to be recovered from Mr. H K S Premalal as at 03.09.2011, the date of vacation of post was Rs. 152,525.25. However the balance of the distress loan included in to this amount is being recovered from his guarantors who are still in the service of this institute. Therefore the amount to be recovered as at 31.12.2020 from him is Rs. 18,732.35. This incident has been forwarded for legal actions.

III. Mr. L K Jayasekara - Rs. 29,086.38

He was a former Director of the institute. The the amount to be recovered from him as at 09.01.2015 was Rs. 29,086.38. This incident has also been forwarded for legal actions..

IV. Mr. Rangana Athukorala - Rs. 19,474.50

The amount to be recovered from this person as at 03.06.2014, the date of vacation of the post was Rs. 19,474.50. This incident has been forwarded for legal actions.

V. Mr. A M D N Thennakoon - Rs. 196,767.29

The amount recoverable from Mr. A M D N Thennakoon is Rs. 196,767.29 and actions are being taken to recover this amount.

(e) Debtor balances of the institute which are continued for more than five years amounting Rs. 626,737.00, are as follows.

1) Mr. T Ravichandran – Rs. 150,015.00

Mr. T Ravichandran is a guarantor of a foreign scholarship beneficiary debtor. Therefore the gratuity payable to him has not been paid by the institute.

Mr. N S Wikramarachchi – Rs. 39,135.61

Even though he has been informed about the amount of Rs. 39,135.61 payable to him by the institute, he has not been presented to obtain this money. He has been re-informed on this regard.

2) The value of the cheques cancelled due to expiration is Rs. 34080.00. Since it has not been re submitted to recover this sum, necessary actions will be taken to adjust those values from accounts.

3) Mr. Upathissa Paranamana –Rs. 50,000.00

This is the guarantee deposit made by the Canteen keeper and has to be refunded to him.

4) Gratuity payable Rs. 126,912.50

Arrears of gratuity payable on cost of living allowance has been computed as Gratuity payable. Two out of these debtors are guarantors of foreign

scholarship beneficiary debtors. Mr. H K S Premalal is a debtor to the institute. Therefore they have not been presented to settle this amount.

- 5) Tender deposits- Rs. 124,462.50
- 6) Amount Payable to Ministry – Rs. 94,358.05

This is the amount to be recovered from A M D N Thennakoon, a driver attached to our institute, faced with the accident of the vehicle of the Ministry of Agriculture bearing no WP-KM-5207 driven by him. This sum has to be recovered from his final account. Reminders have been sent to him this regard and recover this amount. after recovering this amount it will be paid to the Ministry .

- 7) Study on food security needs - Rs. 7,774.28

This is the amount received for the study on food security needs. Necessary actions will be taken to do relevant adjustments regarding this amount.

- (f) The director has appointed a committee comprised with three officers of the institute by letter no. R/Info/5 dated 10.07.2019 to reveal the details about this matter and the relevant committee report has been submitted to the Director on 02.09.2019. The amount to be recovered identified as per that committee report is Rs. 8,895,470.00 and a new committee has been appointed by letter no. R/Info/5-II dated 21.04.2021 to consider the procedure of recovering the said amount. The relevant committee report has been submitted to the Director on 19.04.2021. Accordingly, actions will be taken to recover that amount in future.
- (g) Even though this vehicle has been given to our institute by Food and Agriculture Organization of the United Nations for research purposes, ownership of the vehicle has not been transferred to our institute. In order to get the ownership[of this vehicle transferred to the Institute , It has to pay the vehicle license fees and other fees payable to the government relevant to the previous years and due to the present condition and the value of the vehicle it is not favorable to the Institute. Letters have been sent to Food and Agriculture Organization of the United Nations requesting to acquire this vehicle. No response has been received yet from them.