

ANNUAL REPORT 2017

INSTITUTE OF POST-HARVEST TECHNOLOGY

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Institute of Post Harvest Technology,
No 28,
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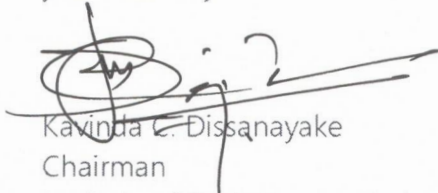
Hon. Minister of Agriculture,
Ministry of Agriculture,
No 28,
Sri Jayawardenapura Mw,
Rajagiriya.

Hon Minister,

ANNUAL REPORT – 2017

In terms of section 14(2) of the Finance Act No 38 of 1971, we wish to submit Annual Report and the Statement of Accounts of the Institute of Post Harvest Technology, for the year 2017.

your faithfully



Kavinda C. Dissanayake
Chairman
Institute of Post Harvest Technology

The Institute of Post-Harvest Technology functioning under the purview of Ministry of Agriculture established on 19th June 2000 by the Extraordinary Gazette of the Democratic Socialist Republic of Sri Lanka No. 1137/10 for the purpose of carrying out post-harvest research and development on all agricultural crops. The newly established institute has taken over the functions of the Rice Processing Research and Development Centre (RPRDC) of the Paddy Marketing Board at Anuradhapura, which was set up with FAO/UNDP assistance in 1976. The new Institute has been assigned the functions and responsibilities for carrying out post-harvest research and development on not only rice and grains but also on other field crops, vegetables, fruits, spice crops and cut flowers.

MANDATE

According to the mandate given in the gazette notification, the Institute of Post-Harvest Technology is supposed to serve as the coordinating body to bring together all agencies concerned for the purpose of identifying and prioritizing the research needs and implementation of programs for the development of the postharvest technology in Sri Lanka.

VISION

To be the center of excellence in sustainable postharvest development for national food security

MISSION

Sustainable development of national food security through efficient and effective postharvest technological interventions to strengthen the supply and value chains of the agricultural produce and products with high quality and safe food, to cater to the domestic and export markets at competitive price

BOARD OF MANAGEMENT

As at 31st December 2017

Chairman

Kavinda C Dissanayake

Vice Chairman

R.P.A.Ranaweera Patirana

Members

Mr. Nanthagopalan

Mr. S.P.Kumara Gunarathna

Mr. D.B.Sarath

Mr. M.S. Karunarathne

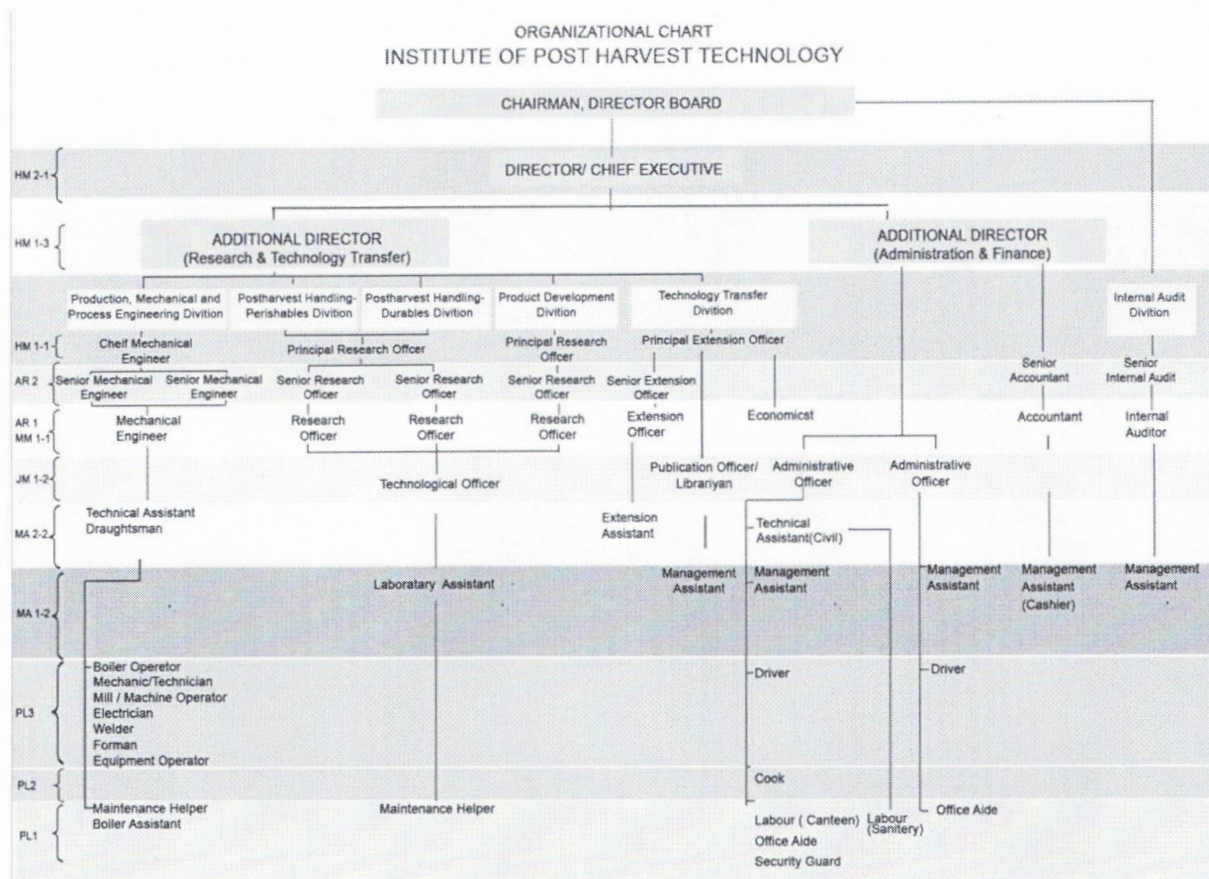
Mr. Priyantha Jayatissa

Secretary to the Board

Eng. Mahesh Dissanayake
Acting Director of the Institute

ORGANIZATION STRUCTURE

Organization Structure as per the Scheme of Recruitment (SOR) approved



Institute has re-structured its divisions in 2016 as follows and is in the process of re-structuring total organizational structure and cadre.

1. Research division
2. Engineering service division
3. Extension division
4. Laboratory service division
5. Planning and Monitoring division
6. Development Project division
7. Administration division
8. Finance division
9. Internal Audit division
10. Information Technology division

SENIOR MANAGEMENT

As at 31st December 2017

DIRECTOR/CHIEF EXECUTIVE OFFICER

Eng. Mahesh Dissanayake

ADDITIONAL DIRECTOR (RESEARCH AND TECHNOLOGY TRANSFER)

Eng. H.M.A.P. Rathnayake

ADDITIONAL DIRECTOR (ADMINISTRATION AND FINANCE)

Mr. R.A.K.P.Ramanayake

RESEARCH DIVISION

Dr. (Mrs.) Nilanthi Wijewardhane
HOD | Principle Research Officer

ENGINEERING SERVICE DIVISION

Eng. B.D.M.P.Bandara
HOD | Mechanical Engineer

EXTENSION DIVISION

Mrs. Chamindi Dissanayake
HOD | Senior Extension Officer

LABORATORY SERVICE DIVISION

Mr. Chaminda Gunawardhane
HOD | Research Officer

DEVELOPMENT PROJECT DIVISION

Mr. W.M.C.B.Wasala
HOD | Senior Research Officer

PLANNING AND MONITORING DIVISION

Mrs. Ruwanka Rathnayake
HOD | Research Officer

ADMINISTRATION DIVISION

Mr. R.A.K.P.Ramanayake
HOD | Additional Director (Admin & Finance)

FINANCE DIVISION

Mr. Niluka Illangasinghe
HOD | Accountant

INFORMATION TECHNOLOGY DIVISION

Eng. (Mrs.) D.M.S.P. Bandara
HOD | Mechanical Engineer

INTERNAL AUDIT DIVISION

Mr. R.M.D.Rathnayake
HOD | Internal Auditor

MANAGEMENT COMMITTEES

As at 31st December 2017

AUDIT AND MANAGEMENT COMMITTEE

Name	Position
Mrs. Inoka Lankathilake	Chairman
Mr. R.P.A.Ranaweera Patirana	Member
Mr. D.B.Sarath	Member
Eng. Mahesh Dissanayake	Secretary
Mr. R.M.D. Rathnayake	Convenor
Mr. J.A.S. Dhammika Perera	Observer
Mr. Namarathne	Observer

ADMINISTRATION COMMITTEE

Name	Position
Mr. K.W.E Karalliyadda	Chairman
Additional Director (A & F)	Secretary
Director	Member
Administrative Officers	Member

FINANCE COMMITTEE

Name	Position
Mr. M.S. Karunarathne	Chairman
HOD/Finance	Secretary
Additional Director (A & F)	Secretary

LEGAL COMMITTEE

Name	Position
Mr. S.P.K. Gunarathne	Chairman
Additional Director (A & F)	Secretary
Director	Member

INCOME DEVELOPMENT COMMITTEE

Name	Position
Mr. Priyantha Jayatissa	Chairman
HOD/Development Project	Secretary
Additional Director (A & F)	Member
Additional Director (R & TT)	Member
HOD/Extension	Member
HOD/Engineering Service	Member
HOD/Lab Service	Member
HOD/Planning and Monitoring	Member

DEVELOPMENT PROJECT COMMITTEE

Name	Position
Mr. D.B. Sarath	Chairman
HOD/Planning and Monitoring	Secretary
HOD/Extension	Member
HOD/Development Project	Member

RESEARCH RELEASING COMMITTEE

Name	Position
Additional Director (R & TT)	Chairman
HOD/Extension	Secretary
HOD/Research	Member
HOD/Engineering Service	Member
HOD/Planning and Monitoring	Member

CHAIRMAN'S MESSAGE



The Institute of Postharvest Technology (IPHT), operating under the Ministry of Agriculture is the National Institute in Sri Lanka where all areas of postharvest industry is addressed by its activities with the goal of enhancing food security in the country. The institute was established on 19th June 2000 by the Extraordinary Gazette of the Democratic Socialist Republic of Sri Lanka No. 1137/10 under the provisions of the State Agricultural Corporations Act. No. 11 of 1972 for the purpose of carrying out postharvest research and development activities pertaining to cereals, pulses, oil seeds, other field crops, fruits, vegetables, spice crops, ornamental plants and cut flowers. The Institute has taken over the functions of the Rice Processing Research & Development Center (RPRDC) of the Paddy Marketing Board, which was set up with FAO/UNDP assistance in 1976.

During the year of 2017, 16 research projects and 08 development projects have been conducted by the institute to improve the supply chains of economically important agricultural commodities and to stabilize farm gate prices for a defined period of time. By launching these regulated postharvest chains living standards of the beneficiaries have increased significantly. Two success stories behind these projects are “Omaragolla Mango” and ‘Peradeniya mango’ where good quality mangoes are being supplied to the consumers at a reasonable price while confirming higher income not only for the

farmer but also for other stakeholders such as pickers, collectors, transporters, pack house owners, wholesalers and retailers involved in the chain and subsequently giving assured quality and safety for mango consumers. As a result of these projects, good quality mangos at a reasonable price are currently available in the market. Afterwards, actions were taken to extend these activities further for other three fruit crops namely guava, banana and papaya. The total fund received through the ministry of agriculture for research and development projects during the year of 2017 was Rs.Mn.70.4 Million. Out of these 8 projects two projects were completed in 2017 and others are being continued in 2018.

Finally, with the success of these projects expected reduction of postharvest losses and waste would lead to minimizing the negative impact of agriculture and agricultural waste/loss on natural resources and environment in the coming future while enhancing the livelihood of the stakeholders of the supply and value chains...

Based on the experience gathered during the year of 2017, I am confident that the Institute would be able to uplift the postharvest industry in the years to come.

A handwritten signature in black ink, appearing to be 'Kavinda C Dissanayake', written over a horizontal line.

Kavinda C Dissanayake
Chairman

The Year 2017 is very successful year to Institute. New Chairman was appointed July 2016. With his new vision, Institute has more focused on development of supply and value chain of agricultural crops in Sri Lanka. All four main activities of the institute viz. research and development, extension, training and consultancy & other services was aligned improvement of supply and value chain management practices.

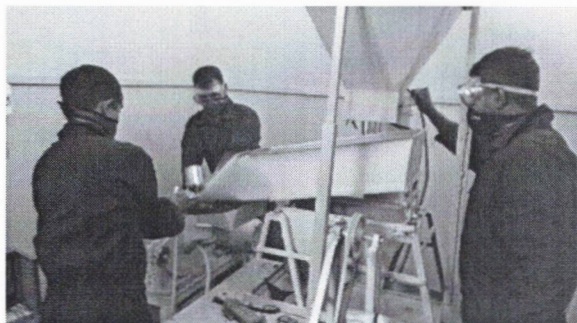
RESEARCH AND DEVELOPMENT

After fifteen (15) years, the institute recruited ten numbers (10) of Researchers.

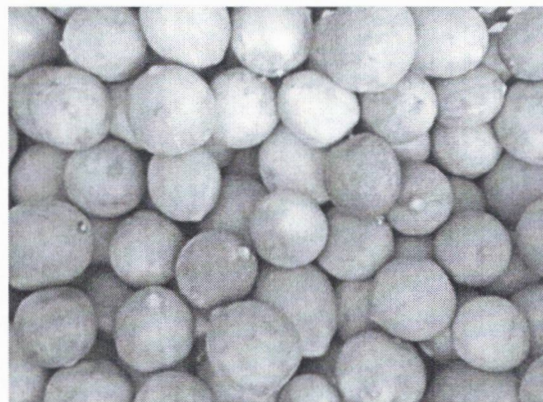
During the year 2017 Thirty (30) research projects has been carried out, which consist eleven (11) research projects continued from year 2015 and seventeen(17) research projects initiated in 2016. Besides, Four (04) research projects were conducted as a public-private partnership project and funded by private sector. Two (2) projects were conducted as external funding research under the grant of NSF & NRC and another two (02) projects were conducted as student projects.

New Outputs

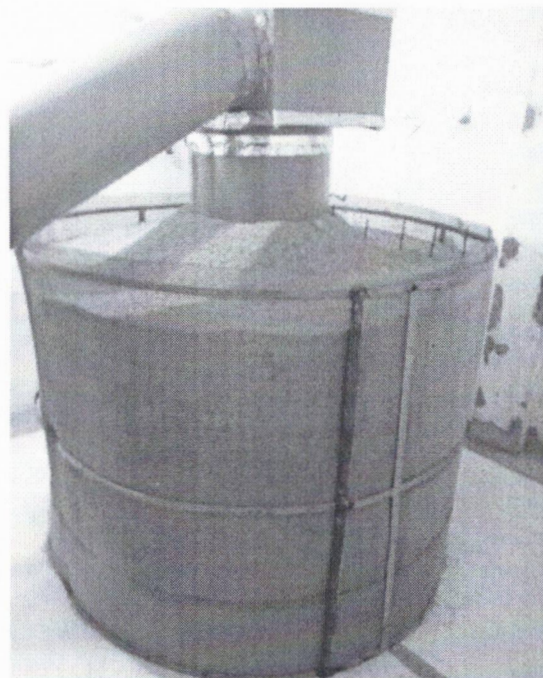
- Correct and novel technologies to improve the postharvest quality of agricultural commodities
- Increase availability of the quality improved fruits in the market
- Quality improved products for the consumers and increased income of the producers



Quality improvement of chili powder by cryogenic size reduction



Wax treatment to enhance the shelf-life of lime



Novel drying system for wet paddy

Patents, publications and awards

- Two patents received for 'vegetarian cake mix' and 'Evaporative Cooling Method for grinding Spice.'
- One presidential award received for international research publications.
- Two research publications in international peer reviewed journals.

Towards national food security by adopting new and appropriate technologies via Development Projects



Establishment of mango handling & processing units via the development projects: Improvement of supply and value chain management practices of mango. Two brands 'Omaragolla Mango' and 'Peradeniya Mango' have been introduced to the market



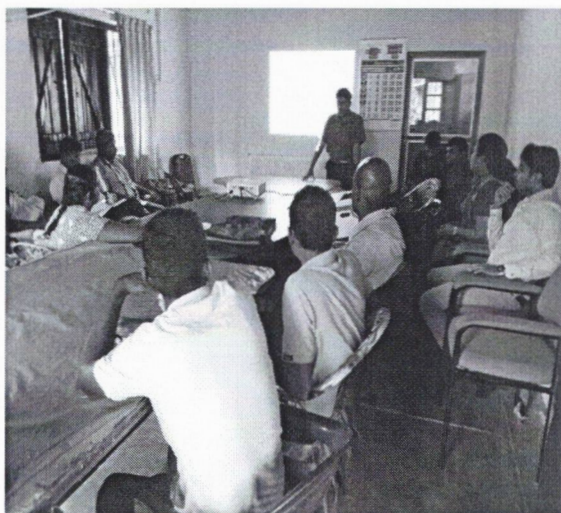
Loss assessment of vegetables with current supply chain management practices. Development project: Management of supply chains of agricultural produce in Sri Lanka

Food Security is the condition in which all people, at all times, have physical, social and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. IPHT focus their projects to enhance food security in the country

*Branding of
fresh produce
is the way of
future since it
creates
premium*

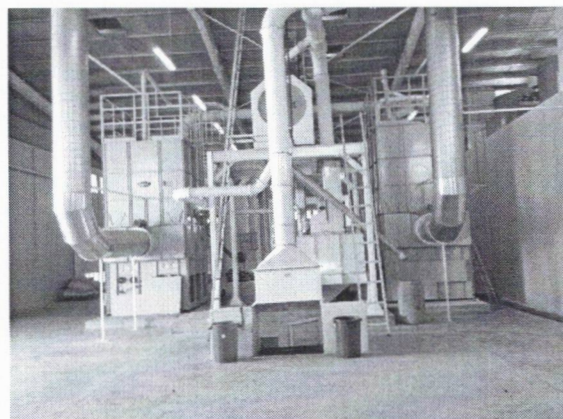
TRAININGS

The institute conducts production/extension oriented residential and non-residential training programs for producers, processors, traders and workers, students from universities and other educational institutions in the field of Postharvest Technology of grains, cereals, root & tubers, fruits and vegetables. During the year under report sixty one (61) residential training courses including study visits were conducted and 2036 individuals were trained. Hundred and ten (110) non residential courses were conducted at field centres and 2955 individuals were trained.



CONSULTANCY AND OTHER SERVICES

IPHT provides consultancy and advisory services to public, private and cooperative sector organizations that are either directly or indirectly involved in post-harvest industry. In 2016, IPHT has worked as consultant to “Warehouse Receipt Project” of Department of Development Finance of General Treasury. This was continued in 2017 too. Under this project, warehouses with pre cleaning and drying facilities were established in Embilipitiya, Medirigiriya and Kilinochchi

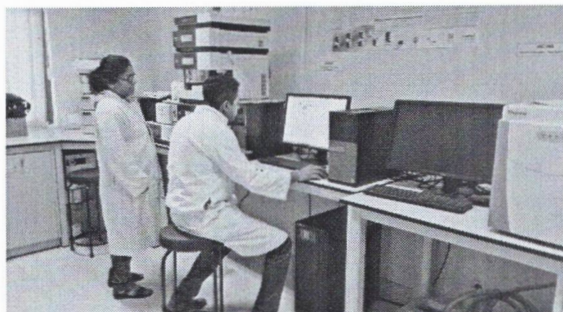


Further, IPHT has given their technical inputs to the project of “Establishment of Cold Stores” conducted by Ministry of Rural Economy. IPHT has prepared two technical reports for Industrial Service Bureau of North-Western Province, Kurunegala. Few more consultancy and technical inputs were given to some rice milling industry to upgrade their facility.



Improved laboratory services as a commercial entity

Institute of postharvest technology has provided laboratory services to the stake holders during the year 2017. Institute commences to outsource the laboratory facilities for our stake holder.

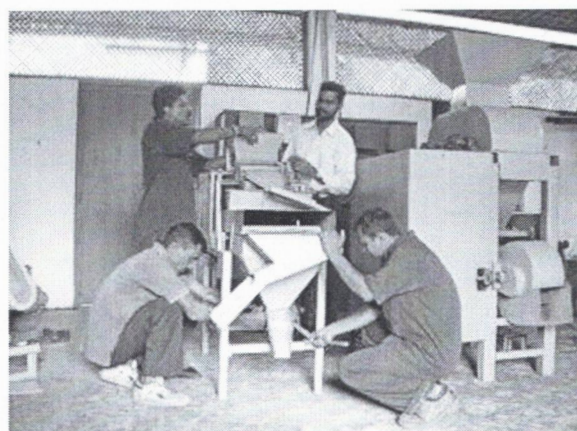


Main project was “Determination of heavy metal contamination of economically important agricultural crops” Under this project, five hundreds (500) samples of imported and local fruits and vegetables like orange, grapes, potato, and big onion etc. were tested under the funds from Ministry of Agriculture.



IPHT Developed machineries to the postharvest sector

IPHT evaluate appropriateness of the machinery produced or imported in the field of post-harvest. The institute manufacturer some machines for selling to the industry. One best-selling machine is pulse de-hulling machine. Six (06) machines provided to the sector in 2017.



SOCIAL, WELFARE AND RELIGIOUS ACTIVITIES

The institute continued its welfare activities to build up employee relations and good will among staff and their families. As per the direction of president's office, employees' day was held in 8th April 2017. The same day evening, the welfare society of the institute held staff and their family get-together.



Appreciation of long service was done in parallel to “Workers Day” event. The cheque worth of Rs. 50 000.00 was given to those who have completed 25 years of service to the institute by the president, His Excellence Maithreepala Sirisena.



IPHT celebrate 17 years of establishment as Institute of Post-Harvest Technology in 19th June 2000 as a successor to the Rice Processing Research and Development Centre of Paddy Marketing Board. To mark this and increase team idea, networking people in the area, “Sarvarathrika Pirith sajjayanaya” was held in 19th June 2017.



FINANCIAL PERFORMANCE

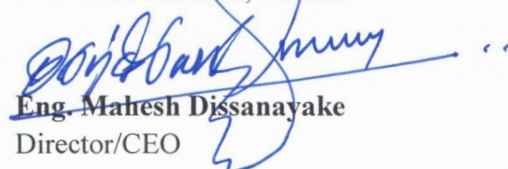
Compared to the year 2016, financial performance of the year 2017 showed positive improvement.

Description	2016 (Rs. Mn.)	2017 (Rs. Mn.)	Growth (Rs. Mn.)
Deficit for the Year	(9.5)	(8.2)	13.7
Cash Equivalent	29.8	27.9	-6.37
Total Current Asset	33.8	79.8	136.1
Total Current Liabilities	17.4	65.3	275.29
Net Asset (Equity)	175.7	211.2	20.2

HUMAN RESOURCE

Eng. HMAP Rathnayake, Senior Mechanical Engineer was appointed as acting Additional Director (Research and Technology Transfer) One research officer and one senior research officer resigned from the institute to join university staff.. Ten numbers of new research officers were recruited to strengthen the research team of IPHT.

IPHT opened head office in separate building in first time its 18 year's history at #28, Ethulkotte Junction, Battaramulla.


Eng. Mahesh Dissanayake
Director/CEO

RESEARCH AND DEVELOPMENT

Research, being the main activity of the IPHT, was directed towards solving technological problems confronting the postharvest industry. According to the research program for 2017, the research activities included both fundamental and applied research, although the latter predominates in the research efforts.

During the year 2017 seventeen (17) research projects has been carried out, which consisted ten (10) research projects continued from year 2016. Seven (07) new research projects initiated in 2017. Out of that three (03) research projects were funded by private sector and two (2) projects were funded by National science foundation and National research council of Sri Lanka. Another seven (07) projects were conducted as student projects.

In addition to disseminating the research finding as new technologies within the postharvest sector for its improvement, the results of the studies were published in peer reviewed national and international journals, Institute of Engineers of Sri Lanka, Symposiums conducted by different universities.

Research Projects Continued from 2016 to 2017

1. Cryogenic size reduction of chili powder
2. Infra-Red(IR) application of rice processing
3. Development of technology for cleaning and de-stoning of agricultural commodities
4. Estimation of heavy metal contamination in some popular vegetables grown in different districts of Sri Lanka
5. Evaluation of appropriate low temperature storage condition for locally available economically important vegetable crops.
6. Determination of postharvest weight loss and quality deterioration of paddy during on farm storage
7. Study on drying of wet paddy under emergency conditions
8. Quality improvement of spices using ozone sterilization
9. Impact of thermal processing on total antioxidant capacity and carotenoid bio-accessibility of tomato juice.
10. Evaluation of the effect of fruit coating on shelf extension of lime under different storage condition.

New Research Projects in 2017

1. Ensuring the safety of edible oil used in food industry by developing methodologies to detect and quantify polymer migration from plastic bottles to edible oils
2. Pre-harvest and post-harvest disease management of green chilies using rice husk Silicon as an alternative strategy for synthetic fungicides.

External funding Research project

1. Studies on fruit phenology, per-harvest foliar treatments on fruit quality and enhancement of postharvest life of lime (*Citrus aurantifolia* Swingle) (Funds received by National Science Foundation under the grant NSF /538)
2. Development of postharvest treatments and storage strategies for enhancement of postharvest life of lime (*Citrus aurantifolia* Swingle) (Funds received by National Research Council, Sri Lanka under the Grant No. 15-154)

Private Funded Research Projects

1. Development of a fruit jelly and shelf-life determination under different storage conditions funds received from Serendib Flora (Pvt) Ltd.31, Riverview, Wariyagoda, Alawwa
2. Development and optimization of medium scale rice flour noodles process (2016.03.31 – 2017.05.31), Amila industries, Nittambuwa
3. Development of medium scale rice flour sifter, Dasa iron works, Narammala

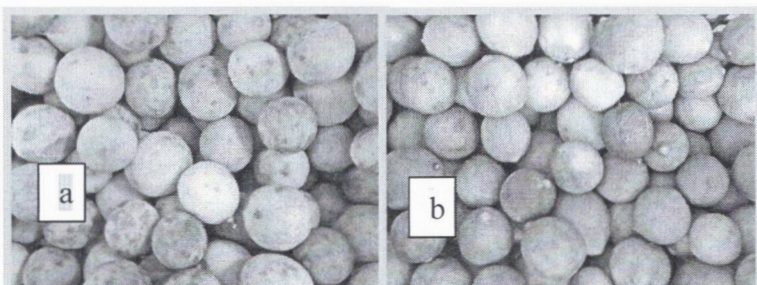
Student Projects

No	Student	Supervisor	Research Title
01	Ms. K.M.D.N. Rodrigo	Mr. C.R. Gunawardane	Development and Assessment of Sensory, Physicochemical and Phytochemical Properties of a Soursop (<i>Annonamuricata</i> L.) Jam
02	Ms. P.I. Sasanka	Dr. (Mrs.) R.M.N.A. Wijewardane	Nutritional, Textural and Sensory Quality of Biscuits Supplemented with Embul Banana (<i>Musa spp.</i>) and Candied Citrus Peel (<i>Citrus Aurantifolia</i>)
03	Ms. A.B.F. Husna	Eng.T.M.R. Dissanayake	Effect of Far Infra-Red Radiation on Paddy Parboiling and Milling Qualities
04	Mr. Anupama Wishwa prabath	Dr. (Mrs.) R.M.N.A. Wijewardane	Effect of Fruit Quality Combination with Difference Storage Conditions for Shelf Life Extension of Lime.
05	Ms. Maheshika Herath	Mrs. R.M.R.N.K.Ratnayake	Study on blackening of mango stem bark and application of control measures
06	Ms. Nadeeka Premarathna	Mr. W.M.C.B. Wasala	Delaying of Ripening of Cavendish Banana Using 1-Methylcyclopropene Under Local Condition
07	Ms. S.M.A.P. Siriwardhana	Dr. (Mrs.) R.M.N.A. Wijewardane	Evaluation of Low Temperature Storage Conditions for <i>Capsicum annum</i> L (Hybrid Muriya) and Enhance the Keeping Quality by Wax Application

01. Evaluation of the effect of fruit coating on shelf life extension of lime under different storage conditions.

The experiment was conducted to evaluate the effect of different storage conditions such as cold (13°C, 85% RH), Zero Energy Cooling Chamber (ZECC) (16-18 °C, 75-80% RH) and ambient storage (30-32 °C, 65-70% RH) together with postharvest coating treatment for shelf life extension of fresh lime. The coating treatment was effectively protecting the quality characteristics of fresh lime and it was able to extend the shelf life up to 15, 30 and 40 days at ambient, ZECC and cold storage respectively.

Results revealed that, shelf life of lime can be extended by applying wax treatment. Thus, shelf life of the wax treated lime at room temperature, zero Energy Cooling chamber and cold rooms were 15,30 and 0 days respectively.

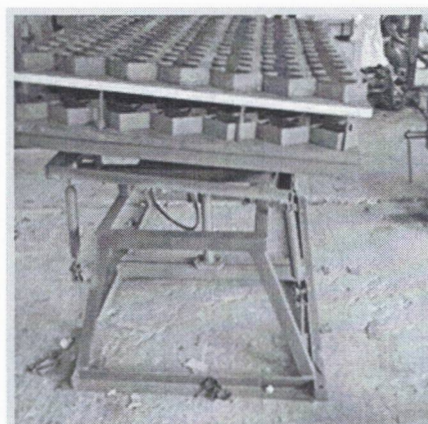


Wax treatment has extended the shelf life of lime while improving its quality attributes

- a. Lime stored under ambient conditions without treatments
- b. Lime stored under ambient conditions after wax treatment

2. Development of technology for cleaning and de-stoning of agriculture commodities.

Suitability of compartment type paddy separator for cleaning and de-stoning of finger millet was evaluated in this study. The cleaning efficiency, grain separation efficiency, output capacity and power consumption of this machine for finger millet were evaluated with two main adjustments, inclinations of the separation table and oscillation speed with constant impurity level. Results indicated that 100% cleaning efficiency, 85.59 % separation efficiency and 635.9 kg/h machine capacity would be achieved by having machine adjustments as level 1 on speed scale and level 3.5 on inclination scale which is the best compared to others. Thus it can be concluded that compartment type paddy separator is suitable for de-stoning of finger millet under the above adjustments.



Fabricated De-stoner

3. Study on drying of wet paddy grain under emergency Conditions.

In last few decades rain fall patterns are drastically changed and there were heavy rainfalls during the harvesting season in major paddy cultivated areas damages lots of paddy harvest. Rainfall during paddy harvesting season is seriously affected on sun drying and therefore paddy producers are compelled to resort to mechanical methods of drying. In mechanical dryers, paddy husk is mostly used as fuel. Fire wood is used in some occasions. But in rainy day it is difficult to find dry fire wood and paddy husks to operate mechanical dryers. And also, mechanical dryers are

available in large rice mills located far away from the paddy field. Transportation of paddy during rainy season is also difficult and there is a necessity for alternative drying method.

Therefore, an alternative paddy drying method was sought under this project. In this project, heat pump-assisted dehumidified method was used and it was succeeded. Developed methods will help to prevent qualitative and quantitative paddy loss occurred during storage due to storing of high moist paddy. And also, developed method will help to solve another major issue of drying of high moist freshly harvested paddy from combine harvesters. Production of high quality paddy will increase farmer's income, and high quality paddy will increase the milling yield during the processing. When off season of paddy, this system can be used to drying parboiled paddy or any other agricultural produce such as maize, chili, fruits and vegetables etc.



Developed Dryer

4. Estimation of heavy metal contamination in some popular vegetable grown in different districts of Sri Lanka.

As public and international demand for safe food which is free from harmful heavy metals has been heightened and the activities continue to secure the national and international commitments to manage heavy metals to acceptable levels. As public and international demand increasing with respect to the safety of foods, it is highly important to identify the hazardous contaminants like heavy metals available in food commodities specially imported from different countries. Many of local importers tend to import large number of food item without any food safety standard as practiced in other countries such as European countries.



A Research Officer from IPHT is taking samples from a grape farmer for analyzing heavy metal contaminations
Date: 18.05.2017 at Jaffna

This research Study was conducted to collect and check both imported (apples, orange, grapes, red onion, B onion, potato and chillies) and locally produced fruit and vegetable samples for selected main 04 heavy metals ((As, Pb, Cd and Cu). Samples were collected from,

- Imported commodities: From Sri Lanka Customs Examination Point- RCT, Orugodawatta, Sri Lanka.
- Locally produced commodities: from local farmers harvesting farmers and from local Market, Sri Lanka

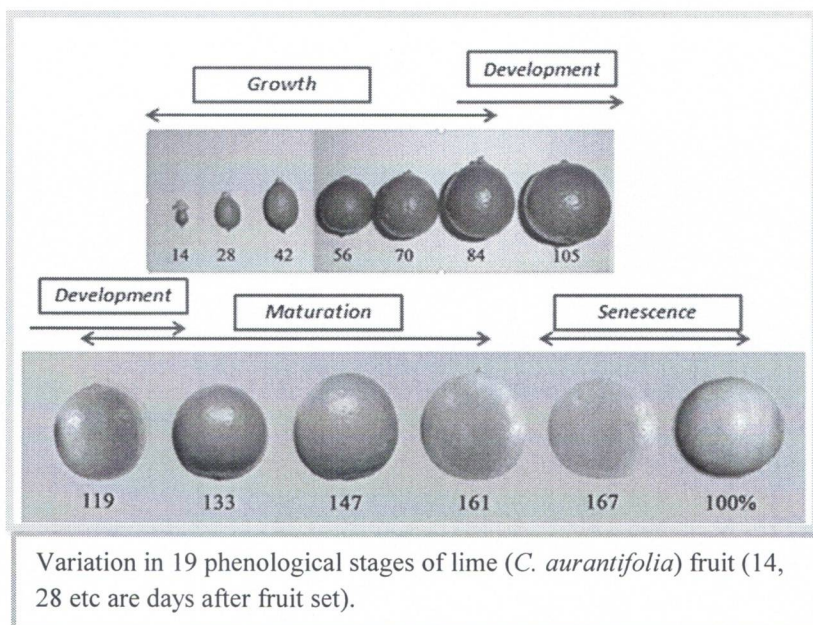
Test reports have submitted to Ministry of Agriculture, Sri Lanka. We have detected some samples with high level of tested heavy metals (As, Pb, Cd and Cu). Findings of this research can be used to improve the knowledge of public about the toxic contaminations of food and health risk and also influence to the government to make a correct decisions/ introduce some legal actions to control contaminations of those materials.

5. Determination of postharvest weight loss and quality deterioration of paddy during on farm storage

According to the previous research studies on grains, postharvest loss of grains is approximately 10-13% which accounts for 420,000 Metric tons and Rs. Million 3780. However, with the application of improved postharvest practices there may be a variation of these available data and it is an urgent need to analyze present status of postharvest losses of grains. In this back ground, this research project was conducted to evaluate the postharvest losses at paddy during on farm storage. Results revealed that, postharvest loss at storage is 6%. The major cause for the loss was identified as insect damages.

6. Investigation of fruit phenology and preharvest foliar treatments of growth regulators on fruit quality, and postharvest life of lime.

There is a constant demand for fresh limes (*Citrus aurantifolia*Swingle) year round as it is used in domestic culinary, food processing industry and as an ingredient in indigenous medicine. Therefore, it has been identified as one of the high priority crops by national committee of postharvest technology and value addition. During off season the price per kg of lime rises to a level that is unaffordable (600-1000 LKR) by the consumers. On the other hand, during peak time, the price drops to a level that lime growers leave the fruit without harvesting as it is insufficient to recover the cost of production. However, in Sri Lanka, no systematic research has been carried out yet, to address pre and postharvest issues of this crop thus at national level, the technology is still lies in an infancy stage. Therefore, the research aimed to study fruit phenology, maturity and manipulating fruit season for programmed year round marketing. Lime fruit



growth, development & maturity (phenology) stages have been identified and colour charts and sizing rings have been developed to distribute among farmers and other relevant

TECHNOLOGY TRANSFER ACTIVITIES VIA DEVELOPMENT PROJECTS

The development projects carried out by the IPHT during the year 2017 in order to ensure technology adoption and their impact on the postharvest industry are described below. While the national priorities aimed towards increasing production, exploration of export markets, agribusiness development and assuring food security, postharvest technology has become a more priority area of the national scope. In this context, IPHT carried out development projects to address the issues in postharvest sector thus aimed to minimize postharvest losses and quality improvement of agricultural produce. And also these development projects aimed to introduce improved technologies for agribusiness development throughout the country.

During the year of 2017 the institute of postharvest Technology has conducted 08 development projects island-wide for effective dissemination of postharvest technologies and these projects were funded by the Ministry of Agriculture under 'National Food Production Programme'. The total fund received through the ministry of agriculture during the year of 2017 was Rs.Mn.70.4 Million. Those development projects were as follows;

- a. Improvement of supply and value chain management practices of mango in Sri Lanka
- b. Improvement of supply and value chain management practices of Guava in Sri Lanka
- c. Improvement of supply and value chain management practices of Papaya in Sri Lanka
- d. Improvement of supply and value chain management practices of banana in Sri Lanka
- e. Management of supply and value chains of agricultural produces in Sri Lanka
- f. Determination of heavy metal contaminants of economically important food commodities
- g. Induction of Fruit ripening by organic methods
- h. Training of trainers on Post-Harvest loss reduction of agricultural food crops in major agricultural institutions in Sri Lanka

Out of these 8 projects lastly mentioned development project was completed during the year of 2017 and the other 7 projects are continued in 2018.

a. Improvement of supply and value chain management practices of mango in Sri Lanka

Mango is abundantly cultivated in home gardens and as commercial cultivations, due to its high taste and nutritional value. There is a high demand for high quality tasty mango in the local as well as in the international market. But the industry is facing a huge problem in dealing with low quality fruits with use of improper postharvest practices and high postharvest losses. This had made the mango industry to limit its benefits given to the consumers and all other beneficiaries related to mango in reducing their profits, increasing the market price, and reducing the quality of the fruit.

To solve these issues a development project was conducted in 2016 and it continued up to 2017 as well. The project includes activities of improving the supply and value chains of mango. The project

undertook mainly a baseline survey, training and establishment of handling and processing units throughout the country.

The main activity of the project is to establish mango processing zones where all appropriate postharvest technologies are used and high quality mangoes are marketed. The technologies introduced include, harvesting, handling and packaging, ripening, branding and other marketing strategies as well.

In the year 2017, 2 mango processing zones were established in Omaragolla (Kurunegala district) and Peradeniya (Kandy district) with 11 mango handling and processing centers. All preliminary activities for establishing the other 06 zones were also completed and due to be established in the first quarter, 2018. High quality mangoes are now marketed under two brand names which are “**Omaragolla mango**” and “**Peradeniya mango**”. A high demand was observed for these two brands among consumers and traders. The project continues to 2018.



Opening ceremony of the Mango Processing Zone at Peradeniya Date:09.10.2017

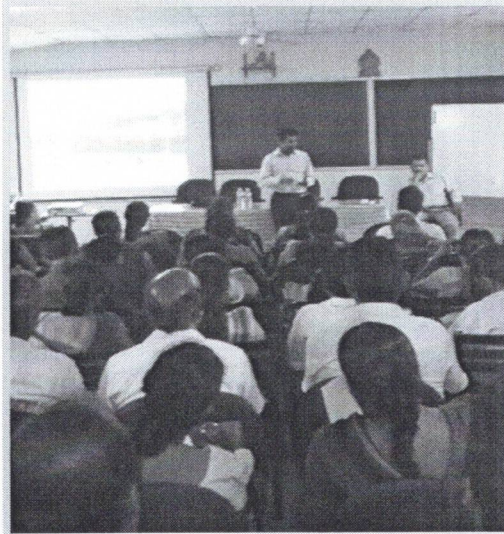
Left -Mr.B. Wijerathne, The Secretary of the MOA, Dr. Rohan Wijekoon, Director General, DOA and other distinguished guests with the chairman and other officers of IPHT

Right- The Secretary, Mr. B.Wijerathne checked the mangoes ready to be supplied under the brand name 'Peradeniya Mango'

b. Training of trainers on postharvest loss reduction of agricultural food crops in major agricultural institutions in Sri Lanka

Lack of knowledge among relevant stakeholders is a limiting factor for improvement of postharvest sector. Therefore, knowledge improvement is an essential component in developing the sector. The main source of knowledge for beneficiaries is through the government extension staff of various institutions. The primary institutions involved in this activity are the Department of Agriculture and Department of Agrarian Development. Therefore, by improving the knowledge of the officers involved at the grass root level is a very important factor.

Therefore, under this project, training of trainer program was conducted for Agriculture Instructors of the Department of Agriculture and for Agriculture Research and Production Assistants of the Department of Agrarian Development. The project was a continuation from the year 2016. In the year 2017, the institute conducted 17 training programs and trained 1381 ARPAs of the Department of Agrarian Development.



Training of trainers programmes

Left - Mr. N. Somakanthan, Extension officer of IPHT is giving a lecture on postharvest technology to the ARPAs in Jaffna at District training center, Jaffna, on 14.02.2017

Right - Mr. M.M.Herath, Extension officer and Mr. G.W.S.Pathirana of IPHT is giving a lecture on postharvest technology to the ARPAs in Kurunegala at District training center, Pothuhera, on 27.03.2017

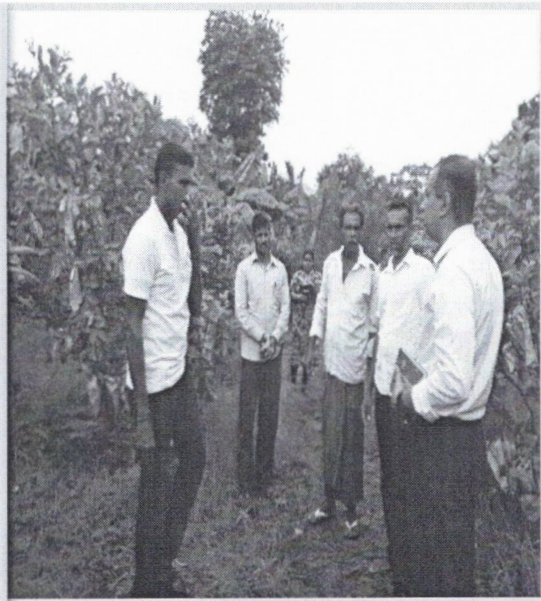
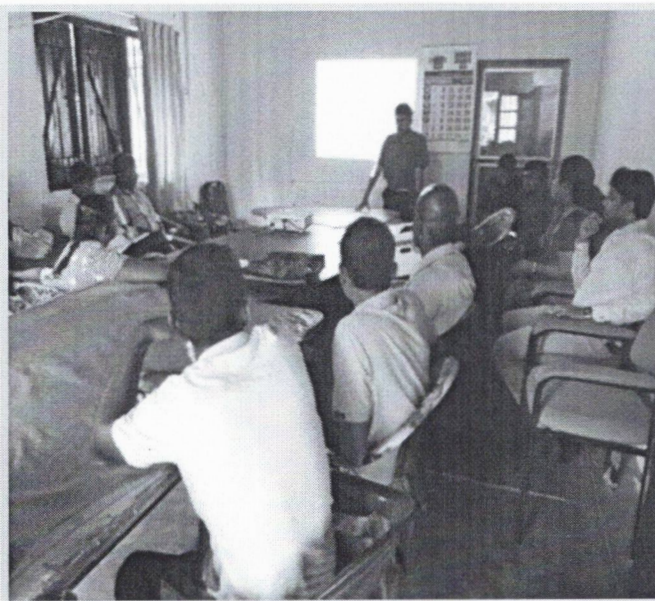
c. Induction of fruit ripening by organic method

This project was initiated with the aim of developing an organic fruit ripening method to be used in commercial fresh fruit industry. Leaf powders of Bilin, kappetiya and combinations of these two leaves were tested for ethylene emanations using Gas chromatography and conducting the experiments are in progress.

d. Improvement of Supply and value chain management practices of Guava

Guava is one of the emerging fruit crops mainly cultivated in dry zone areas. Sri Lankan climatic conditions and other factors are highly favourable towards cultivation of Guava giving high yields. But high postharvest loss which is approximately 30-35% and low quality and associated safety issues such as use of improper postharvest practices had made the industry less profitable and problematic. Therefore, the project was conducted to improve all steps in both supply and value chains of guava through improving knowledge and infrastructure facilities to popularize the use of appropriate postharvest practices during supply and value chain activities with relation to guava in Anuradhapura district.

Under the project three training programme was conducted and 57 beneficiaries have trained. Two guava processing zones are ready to be established in Ipalogama and Puliyankulama areas and twenty seven handling unit were initiated. One unit include sorting table, packing table, plastic crates, corrugated boxes, stickers, guava bags, pricing machines, date seals and pheromone traps. Project is continued to 2018.



Left: Officers of IPHT and Vidatha centers having a discussion with the beneficiaries of the project

Right: Field visit on 08.11.2017. Research officer at IPH is having a discussion with the beneficiaries of the project.

e. **Improvement of Supply and value chain management practices of Banana**

Banana is the major fruit crops cultivated in Sri Lanka in terms of land extend production and consumption. Sri Lankan climatic conditions and other factors are highly favorable towards cultivation of banana giving high income year around. But high postharvest loss and low quality and associated safety issues due to use of improper postharvest practices had made the industry less profitable and problematic. The annual banana production is around 3.3 million bunches. The annual quantitative post-harvest loss is 30% which makes the loss to be around 0.99 million bunches per year. This means that banana worth around Rs.1 billion is being wasted every year.



Field visit to a banana grower at Rajanganaya

Date: 06.09.2017

Research Officers of IPHT and beneficiaries of the project are in the picture

Therefore, the project was conducted to improve all steps in both supply and value chains of banana through improving knowledge and infrastructure facilities to popularize the use of appropriate postharvest practices during supply and value chain activities with relation to banana in Anuradhapura district. Under the project one training programme was conducted and 21 beneficiaries have trained.

One Banana processing zone is going to be established in Rajanganaya area and 12 handling unit will be initiated. One unit includes Ripening chamber, sorting table, packing table, plastic crates, corrugated boxes, stickers, pricing machines, date seals and Styrofoam sheets.

f. Improvement of Supply and value chain management practices of Papaya

Papaya is one of the major fruit crops mainly cultivated in dry zone areas. Sri Lankan climatic conditions and other factors are highly favourable towards cultivation of papaya giving high yields. However, high post-harvest level and poor quality at the due to use of improper postharvest practices had made the industry less profitable and problematic in conventional supply chain. The annual papaya production is around 26 million fruits. The annual quantitative post-harvest loss is 46% which makes the loss to be around 11 million fruits per year. This means that papaya worth around Rs.300 million is being wasted every year.



Introduction lecture on Papaya pilot project at Thambuththegama on 28.09.2017.

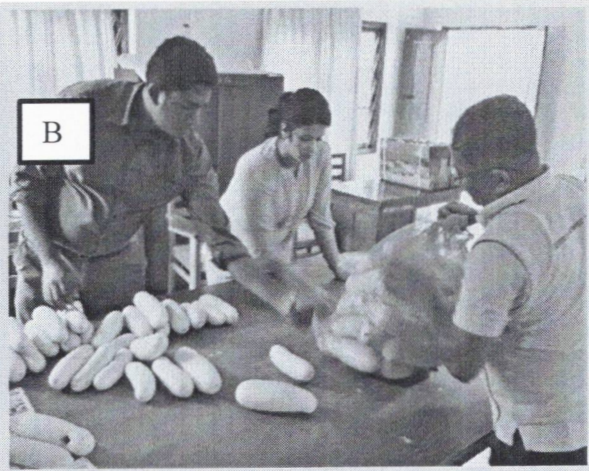
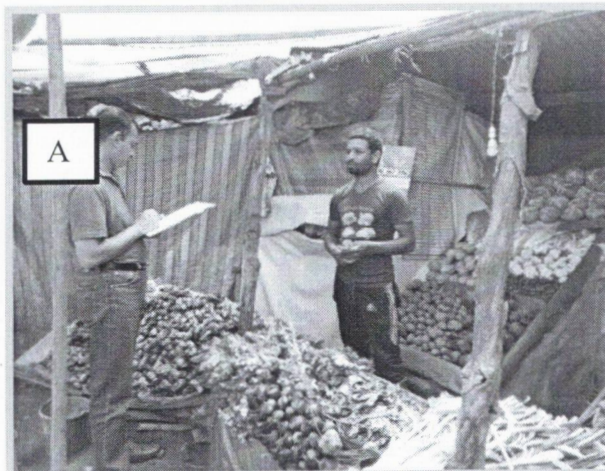
IPHT officers explain the success story of mango project to the group of papaya collectors.

Therefore, the project was conducted to improve all steps in both supply and value chains of papaya through improving knowledge and infrastructure facilities to popularize the use of appropriate postharvest practices during supply and value chain activities with relation to papaya in Anuradhapura district. Under the project Two training programme was conducted and 26 beneficiaries have trained. One Papaya processing zones were established in Rajanganaya areas and 12 handling unit were initiated. One unit include Ripening chamber, sorting table, packing table, plastic crates, corrugated boxes, stickers, pricing machines, date seals and Styrofoam nets.

g. Management of supply and value chain of agricultural produces in Sri Lanka

Price fluctuation along the value chain of perishables is one of the major issues in industry. During the harvesting time prices fall much below the minimum floor price due mainly to the excess supply of grains and perishables. Also expansion of supply chain which leads to high post-harvest losses is happened resulting low quality of agricultural produce. Poor distribution of agricultural produce is another problem encountered within the industry which leads to surplus during the season and deficit during rest of the year. Strengthening and coordination of the distribution network can solve many more problems in the industry. Therefore, a development project was conducted to initiate the rearrangement of perishable supply chain in Sri Lanka. Initially, secondary data related to crop production and consumption was gathered from government institutions such as Department of Agriculture, HARTI, etc. Crop production data at DS levels were collected from census and statistics divisions of DS office. Further, crop production data at APRA levels was obtained using questionnaire

booklets. The post-harvest weight loss of 12 vegetables and three fruits; tomato, brinjal, carrot, snap bean, long bean, okra, snake guard, bitter guard, cucumber, beet, leeks, green chili, papaya, banana and guava, were studied along 10 supply chains throughout the country. 100 GPS tracks and 100 temperature data loggers were purchased to monitor the produce distribution in the rearranged supply chain.



Loss assessment study of vegetables

- A. Filling a questionnaire on postharvest losses at retailer
- B. Investigations on Mechanical damages caused by transportation
- C. Loss assessment activity at field



EXTENSION

Extension division carries out its technology dissemination activities through its island wide extension Centres in liaison with government and non-government organizations. Technology dissemination through field level extension work, which is one of the major activities of the institute, was continued during the year 2017. New extension centre was established in Colombo at head office

The island wide extension network will consist of eight Post-Harvest Technology Centres located in the following major crop producing areas:

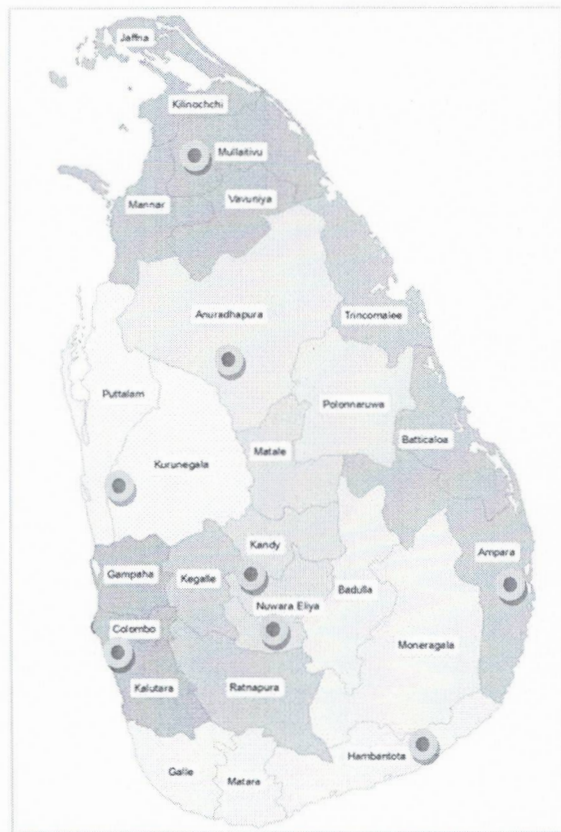
1. Anuradhapura (covering Anuradhapura, Polonnaruwa, Trincomalee)
2. Abanpola (covering Kurunegala, Puttalam)
3. Kandy (covering Kandy, Matale, Kagall)
4. Nuwara Eliya (covering Nuwara Eliya, Welimada and Badulla)
5. Ampara (covering Ampara, Monaragala, part of Batticallo, Mahaweli System C)
6. Hambantota (covering Hambantota, Matara, Galle, Ambilipitiya)

7. Kilinochchi (covering Kilinochchi, Vavuniya, Mullathiv, Jaffna, Mannar)
8. Colombo (covering Colombo, Gampaha, Kaluthara) –**New Extension Centre**

Main different Sectors Selected for Technology Transfer activities.

- a) Minimization of postharvest losses in agricultural crops
- b) Introducing technologies for storage methods
- c) Processing of rice, pulses and other grains
- d) Spice processing
- e) Value addition for fruits and vegetables
- f) Rice and pulse based product development
- g) Awareness programs on human nutrition and food habits in Sri Lanka

Agricultural extension (also known as agricultural advisory services) plays a crucial role in promoting agricultural productivity, increasing food security, improving rural livelihoods, and promoting agriculture as an engine of pro-poor economic growth.



Currently island wide technology transfer activities are covered by 7 extension centers

During the period under review, many extension activities were conducted aiming towards farmers, collectors, processors, traders, extension workers both from public and private sector organizations, students from schools, technical colleges, universities and other educational institutions.

One of the main activities conducted under the extension program was conducting training programs. These Training programs are being conducted every year by the institute. The training activities of the IPHT are aimed towards updating the knowledge of producers, processors, traders and workers, from both public and private sector agencies, in the field of Postharvest Technology of grains, cereals, root & tubers, fruits and vegetables.

TRAINING

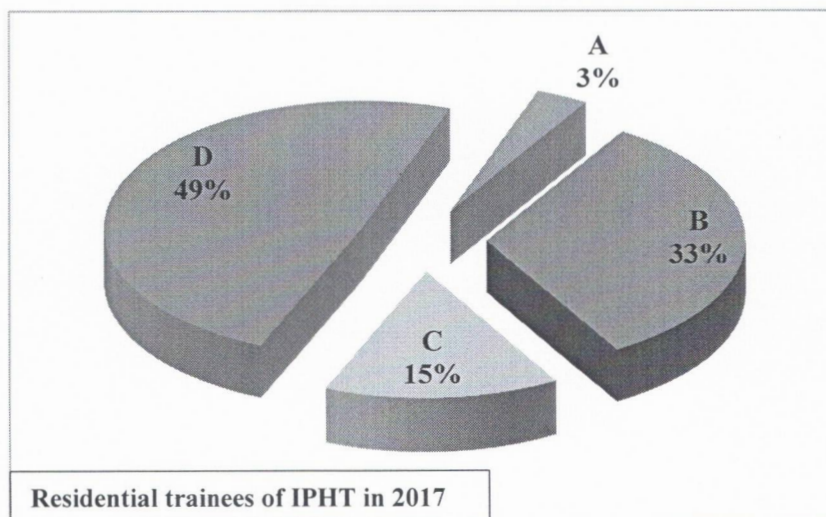
Training programs were conducted in following two strategies; conducting programs at the institute which are referred to as residential training programs and the programs conducted in the field. All these programs are based on stakeholder requirement and were organized to cater to the training need of the beneficiary trained.

- i. Residential training programs
- ii. Non-residential programmes

Residential Training Programmes

These training programs were conducted at Research and Development Center at Anuradhapura. During the year 2017, 61 short-term residential training courses were conducted and 2036 persons were trained in various disciplines of Post-Harvest Technology and the details are given in Fig 1.

The training programs were aimed towards all stakeholders of the supply and value chains of the agricultural produce. These stakeholders were mainly farmers/farm women, collectors, transporters, whole sellers, retailers/traders and processors. Further these programs were also conducted under training of trainer aspect for officers of government and non-



governmental organization, students of universities, technical colleges and schools. These programs were aimed towards awareness creation on postharvest technology, entrepreneur development, loss reduction, process and product quality improvement, postharvest machine operation and maintenance, etc.

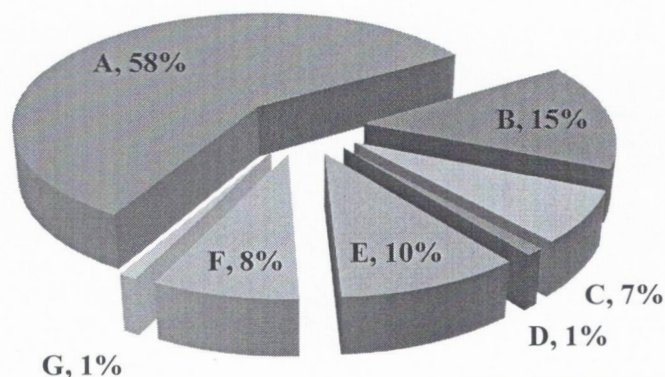
Group	Description	No. of training programs	No of trainees
A	Farmers, farm woman and members of farmer organizations	02	50
B	Project beneficiaries and small/medium scale entrepreneurs	20	478
D	Extension Officers from public, cooperative, private sectors and NGO	09	256
E	Students from Secondary schools, Universities, Schools of Agriculture and Technical Colleges	30	1281
	Total	61	2036

Non-residential/ Field training programs

These programs are conducted in the field itself. These are conducted by the R&D center in Anuradhapura and the extension centers of IPHT. During the year 2017, 110 field training programs and demonstrations were conducted and 2962 individuals were trained.

The training programs were aimed towards the stakeholders of the supply and value chains of the agricultural produce were mainly targeted towards farmers/farm women, collectors, transporters, whole sellers, retailers/traders and processors. Awareness creation on postharvest technology, entrepreneur

development, loss reduction, process and product quality improvement, postharvest machine operation and maintenance, etc. are covered under these programs



Trainee categories of field training programs conducted in 2017

Group	Description	No. of training programs	No of trainees
A	Farmers, farm woman and members of farmer organizations	70	1690
B	Project beneficiaries and small/medium scale entrepreneurs	18	454
C	Collectors, transporters and traders of agricultural produce	07	228
D	Processors of agricultural produce	03	18
E	Extension Officers from public, cooperative, private sectors and NGO	09	294
F	Students from Secondary schools, Universities, Schools of Agriculture and Technical Colleges	02	253
G	Bakery owners	01	18
	Total	110	2962

Many of these beneficiaries are using the technologies given in these training programs. Through the technical knowledge attained, knowledge improvement, quality enhancement of produce, income generation, rural empowerment and many other benefits were achieved. This directly contributes to the loss reduction and quality improvement of the local produce in the agriculture sector, which is one of the main limiting factors in the national development in line with food security. Further it had contributed to industrial development, economic development and social development with improved living standards as well. Some beneficiaries who had initiated/ developed their industries under these programs are listed below.

No	Name	Address	Used Technology
1	R.M .I Dayani	Gatalawa,Minnuwangate	Vegetarian sausage production
2	W.M.M.W Warnasooriya	Iddamalpitiya,Molawa	Rice based products
3	C.Samarakoon	Aguruwela,Padiyathalawa	Rice based products

4	A.K Gamage	No57, Wajira, lane, Hawaeliya,	Rice based products
5	K.N Abeyrathne	SAM Super International pvtltd, Didula	Rice based products(Sarwaposha)
6	R.M Jayathilaka	Katakadura, Walapane	Cereal based products
7	K.D.R Kumara	225/4/1, Polwagajanapadaya, Ampara	Spice based products
8	M.Rathnayake	55, Mawunnewala lane, Padiyathalawa	Rice based products
9	R.G.P Aththanayake	30/A/259, Koknahara	Modernization of rice mills
10	P.G Chandralatha	30/192 Mayadunna, Ampara	Lime based products
11	W.Manoj	8/24 Rajagama, Weeragoda	Spice products and packaging
12	L.N Liyanarachchi	255/6/A Edaduwwa, Peradeniya	Improved fruit ripening methods
13	W.G.T.P Sanjeewa	137/B/Owala, Kiribathkubura	Improved fruit ripening methods
14	K.M.Gunasekara	Pulawala Tamepitiya, Mahaoya	Modernization of rice mills
15	W.Manoj Harshaka	8/24, Rajagama	Spice based products
16	D.M.A.H.Kumara	5/15, Pilapitiya, Kiribathkumbura	Improved fruit ripening methods
17	D.G.Anura	394/A, Bogahakanda, Halloluwa	Improved fruit ripening methods
18	W.M.Pushpakumari	Udawewathanna, Mathurata	Rice flour production
19	Chulani Samarakoon	Agaruwella, Padiyapelella	Rice flour production
20	J.W.Sandaya Kumari	Wasana, Nikawewa, Moragollagama	Rice flour production

Certificate course on Postharvest Machineries

Engineering division routinely was conducting certificate course on postharvest machineries. Details relevant to the year 2017 are as follows.

No	Date	Description
01	21.02.2017	Certificate Course on high quality rice flour production
02	28.03.2017	Certificate on operation and Maintenance of Rice Processing Machinery
03	30.05.2017	Certificate Course in high quality rice flour production
04	02.08.2017	Certificate on operation and Maintenance of Rice Processing Machinery
05	25.10.2017	Certificate Course on high quality rice flour production
06	26.10.2017	Certificate Course on high quality rice flour production
07	14.02.2017	Certificate Course in High Quality Rice Production

There are no courses for developing skill persons for operating post-harvest machinery and equipment. Hence, IPHT is planning to start NVQ 3&4 courses on rice milling.

In-plant / Industrial training

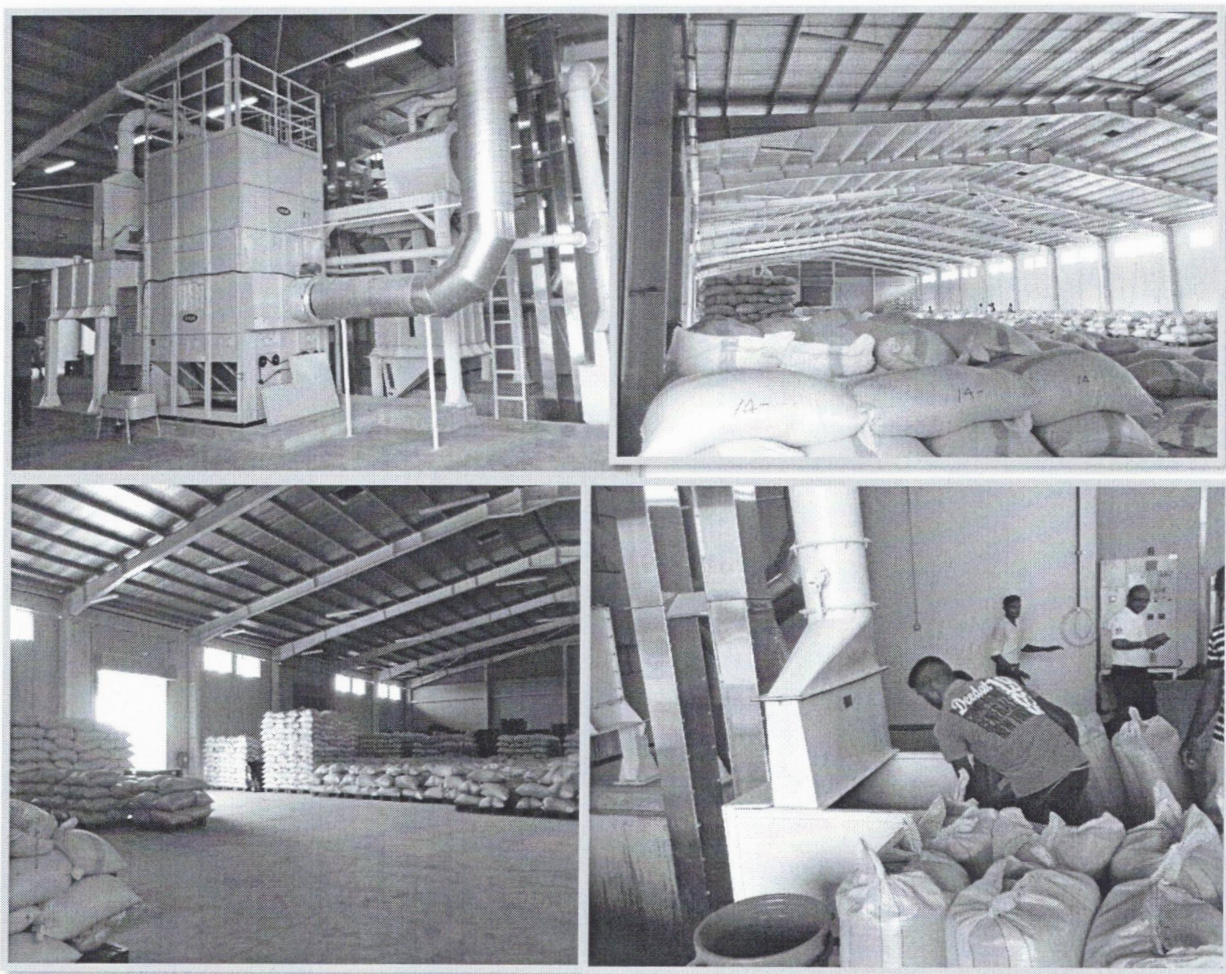
During the period under review following students were accommodated as trainees at our Institute.

No	Name	Institute	Training	Duration
01	C.A.Kumarasiriwardhana	Rajarata University	Industrial Training Programme	2017/02/20-2017/03/17
02	H.P.B.G.Senarathna	Rajarata University	Industrial Training Programme	2017/02/20-2017/03/17
03	P.G. LakshmikaPriyadarshani	College of technology	Agriculture field assistant	2017/07/17-2018/01/16
04	K.M.P.G.S.M.K Navarathne	College of technology	Agriculture field assistant	2017/07/17-2018/01/16
05	P.S.M Premathilaka	College of technology	Agriculture field assistant	2017/07/17-2018/01/16
06	R.W.M.S.V Polkotuwa	College of technology	Agriculture field assistant	2017/07/17-2018/01/16
07	P.A.N Weerakoon	College of technology	Agriculture field assistant	2017/07/17-2018/01/16
08	E.M.M.D Ekanayake	College of technology	Agriculture field assistant	2017/07/17-2018/01/16
09	P.B.E.M Dissanayake	College of technology	Agriculture field assistant	2017/07/17-2018/01/16
10	M.P.G.I.M Wijerathne	College of technology	Food technology(Diploma)	2017/08/03-2018/02/02
11	Mr.H.R.MRanasinghe	Jaffna University	Agric.Engineering(Post harvest engineering)	2017/08/08-2018/08/31
12	K.A.M.S Bandara	University college Ratmalana	Food technology(Diploma)	2017/11/15-2017/12/15
13	A.M.D.K Abeysinghe	University college Ratmalana	Food technology(Diploma)	2017/11/15-2017/12/15
14	L.B.M.L.M Gunarathne	University of Rajarata	Agricultural extension	2017/12/04-2017/12/29
15	M.M.M Gunarathne	University of Rajarata	Agricultural engineering	2017/12/04-2017/12/29
16	M.P.D.D.Y Bandara	University of Rajarata	Agricultural engineering	2017/12/04-2017/12/29
17	C.M Fayas	University of Rajarata	Agricultural engineering	2017/12/04-2017/12/29
18	E.V.U.P Karunarathne	University of Rajarata	Plant science	2017/12/04-2017/12/29
19	W.M.D Wickramakumari	University of Rajarata	Plant science	2017/12/04-2017/12/29
20	P.A.H Sajeewani	University of Rajarata	Plant science	2017/12/04-2017/12/29

The IPHT has progressively been sought after for consultancy and other services by both public and private sector organizations, as well as the Cooperative sector, which are either directly or indirectly involved in postharvest operations. By providing these services, the institute was successful to provide more than 10 numbers of consultancies in 2017 to establishing several new processing plants, modernizing existing plants and to solve technological problems encountered by rice millers and food processors in their day-to-day operations.

“Warehouse Receipt Project” of Department of Development Finance of General Treasury

In 2016, IPHT has worked as consultant to “Warehouse Receipt Project” of Department of Development Finance of General Treasury. This was continued in 2017 too. Under this project, warehouses with pre cleaning and drying facilities were established in Embilipitiya, Medirigiriya and Kilinochchi

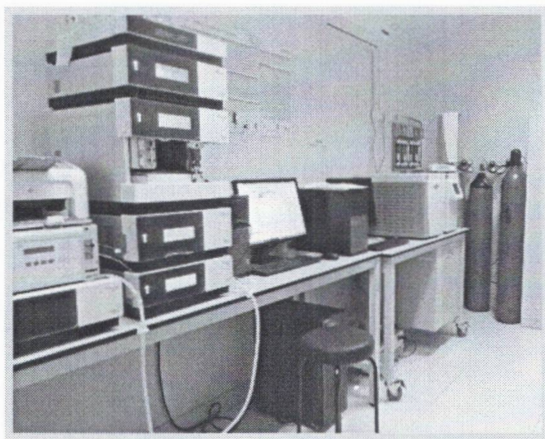


Details of Importnt Consultancies

No	Name of the customers	Services
01	Peace winds- Japan	High quality Rice Production at field, Kanthale
02	Department of Rural Development	Northern Province - Technical Report for grinding machines
03	Parboiled rice processing center of Kaudulla MPCs.	Report on Modernization of rice mill
04	Pallugasdamana MPCs	Report on Modernization of rice mill
05	Pallugasdamana MPCs	Report on Modernization of rice flour mill
06	Kurunegala MPCs	Valuation report of rice mill
07	Sri Lanka Women's Development Services Cooperative Society Ltd	Conducting a consultancy on pulse de-hulling
08	Karachchi South MPCs	Technical Report for Food Processing Center
09	Director of the Warehouse Receipt Financing Project (WHRFP), Ministry of Finance	Providing Consultancy services for warehouse at Buttala and Manner
10	Kalankuttiya Rice Mill -Food Promotion Board	Providing a report on rice milling

Laboratory Services

The Institute played an important role in exercising quality control of agro/food products in the country by analyzing samples received from both private and public sector organizations for their physical, chemical and microbiological quality. IPHT is equipped with well-developed chemical laboratory facilities; especially the chemical laboratory is equipped with Atomic absorption spectrophotometer, Gas chromatography and high performance liquid chromatography, Gas chromatography Mass spectrometer. In the year 2017, using these facilities 500 food samples were analyzed for heavy metal contaminations and many services were given to the stake holders under the period of review. IPHT has commened to outsource the its laboratory facilities and also taking accreditation for its lab facility.



Exhibitions

The institute participated in many exhibitions held island wide. Through participation to exhibitions the institute expected to disseminate the technology to many stakeholders in the country. The details of the exhibitions are given below.

Date	Programme	Location	Institute
12-14/02/2017	Haritha Sihinaya	Kurunegala	Industrial ServicesBurro
03-04/02/2017	Vidaya Darshi VidyaThakshana Exhibition	Nochchiyagama	Nochchiyagama Vidaya Dharshi Collage
17-19/03/2017	Digamadulu Nawodaya	Amapara	District Secretariat Office – Amapara
31/03/2017- 04/04/2017	ThirasaraYugayak	BMICH, Colombo	Ministry Of Agriculture

Institute takes a keen interest to enhance the knowledge of its employees. The following officers of the Institute underwent postgraduate study and training in the fields pertaining to Post Harvest Technology during the year 2017.

Post-graduate Degree Programme (Continue)

Eng. T.M.R. Dissanayake
PhD in Bio System Engineering
Post Graduate Institute of Agriculture (PGIA)
University of Peradeniya

Eng. (Mrs.) D.M.S.P. Bandara
PhD in Bio System Engineering
Post Graduate Institute of Agriculture (PGIA)
University of Peradeniya

Mrs.R.M.R.K. Rathnayake
PhD in Plant Sciences
Post Graduate Institute of science (PGIS)
University of Peradeniya

Short term training/ Meetings/ Conferences (Foreign training)

Mr. W.M.C.B. Wasala Participated Training program on Post-harvest technology in China organized by Government of China from 5May to 29 June 2017

Eng. T.M.R. Dissanayake participated World Food Program exposure visit on “Rice Fortification in India” organized by World Food Program, New Delhi, India from 18 -22 September 2017.

Eng. T.M.R. Dissanayake participated World Food Program training workshop on “Post-Harvest Treatment and Storage for Smallholder Farmers” organized by World Food Program, Beijing, China from 18-28 October 2017

Mr. Gayan Thilakarathne Participated Training program on vegetable Cultivation and Processing in China organized by Government of China from 27May to 27 July 2017

Ms. Hasitha Rathnaweera Participated Training program on vegetable Cultivation and Processing in China organized by Government of China from 27May to 27 July 2017

Mr. P.W.S. Pathirana Participated Training program on vegetable Cultivation and Processing in China organized by Government of China from 27May to 27 July 2017

Awards received in the year 2017

Presidential award for scientific publication for the paper published in "Postharvest Biology and Technology 2015, VOL.91, pp 57-63" titled "Postharvest treatment of polyamines maintains quality and extends shelf life of table grapes (*Vitisvinifera* L.) cv. Flame Seedless".

Patents Received in the year 2017

Evaporative water cooling (EWC) method for grinding spices, International patent classification (IPC) A47J 42/00; issued by National Intellectual Property Office, Sri Lanka. Another patents was received for 'vegetarian cake mix' from National Intellectual Property Office, Sri Lanka.

Eng. TMRDissanayake

- Chairman of Agricultural and Plantation Engineering Sectional Committee of Institution of Engineers, Sri Lanka
- Member to the council of Institution of Engineering, Sri Lanka.
- Area Director, Area H3 Division H, District 82 of Toastmaster International
- External member of faculty board of Faculty of Agriculture, Rajarata University of Sri Lanka.

Eng. H.M.A.P. Rathnayake

- Committee Member of Agricultural and Plantation Engineering Sectional Committee of Institution of Engineers, Sri Lanka
- Member of the working committee of the Sri Lanka Standard Institution for Formulation of Standards for Paddy and rice Member of the national committee of developing policies for agriculture mechanization

Dr. Nilanthi Wijewardana

- Steering Committee Member of the SLAAS, Sri Lanka
- Member of the working committee of the Sri Lanka Standard Institution for Formulation of standards for papaya

Publications

Publications	Technology/ Contribution to the sector
Ratnayake, R.M.R.N.K, Daundasekera, W.A.M., Ariyaratne, H.M., Ganeheneg, M.Y.U. (2017).Effect of root-application of rice husk as a natural silicon (Si) source on the nutritional quality of bitter gourd (<i>Momordicacharantia</i> L.). International Research symposium on pure and applied sciences, University of Kelaniya	Alternative method for chemical fungicide is introduced.
Bandara, D.M.S.P., Amarathunge, K.S.P., Dissanayake, T.M.R., Gunawardane,C.R. (2017). Model development of evaporative water cooling (EWC) grinding system for improving grinding quality of spices. International journal of scientific and research publication	New scientific phenomimum was introduced for the development of spice industry.
Dissanyake, C.A.K., Wasala, W.M.C.B., Gunawardane, C.R. & Herath, M.M. (2017). Introduction of plastic crates to vegetable whole sellers in major economic centers in Sri Lanka: why do people refuse it. Proceedings of the iv International conference on postharvest and quality management of horticultural products of interest tropical regions.6-8 April 2017, Kandy, Sri Lanka pp. 27-	Critical evaluation of the introduction of plastic crates to the supply chain of perishables in Sri Lanka. Authors experience will help in future programmes
Wasala, W.M.C.B., Benaraganma, C.K. Dissanyake, C.A.K., Wijewardane, N. & Sarananda, K.H (2017). Effect of different concentrations and exposure times of 1-MCP (1- Methyl cyclo propane) on delaying ripening of ‘Ambul, banana under ambient conditions. Proceedings of the iv International conference on postharvest and quality management of horticultural products of interest tropical regions.6-8 April 2017, Kandy, Sri Lanka pp. 52	Applicability of a ripening inhibitor is introduced to the sector. It will solve number of issues pertaining in retail market of fruits.
Wijewardane, N., Wasala, W.M.C.B., & Dissanayake, M (2017). Evaluation of the suitability of prototype wooden bulk packages for transportation of leeks (<i>Allium porum</i>)in Nuwara-Eliya to Dambulla vegetable supply chain in Sri Lanka. Proceedings of the iv International conference on postharvest and quality management of horticultural products of interest tropical regions.6-8 April 2017, Kandy, Sri Lanka pp. 53	This finding introduces a novel packaging method for leeks transportation. Currently postharvest loss of leeks is very high and the major reason for such losses has been identified as lack of proper packaging method.
Samaradiwakara, D., Wickremaarachchi, H.C. & Eeswara, J. (2017). Effect of thermal summation on harvest maturity of Citrus aurantifolia Swingle ‘Local’. Proceedings of the iv International conference on postharvest and quality management of horticultural products of interest tropical regions.6-8 April 2017, Kandy, Sri Lanka pp. 53	Identification of correct maturity stage of lime is introduced.

Patents and Awards

- Patent was received for 'Vegetarian Cake Mix' by Dr. (Mrs.) Nilanthai Wijewardhane, Senior Research Officer for her research.



01. Patent was received for "Evaporative Cooling Method for grinding Spice" by Eng. (Mrs.) D.M.S.P Bandara, Mechanical Engineer for her research. International patent classification (IPC) A47J 42/00; issued by National Intellectual Property Office, Sri Lanka.



- One presidential award received for international research publications and two research publications were published in international peer reviewed journals.

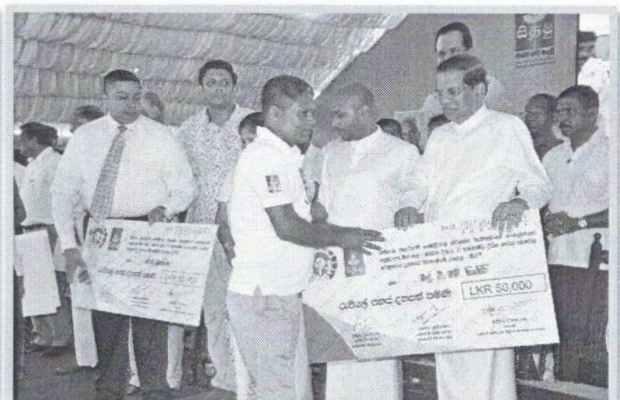
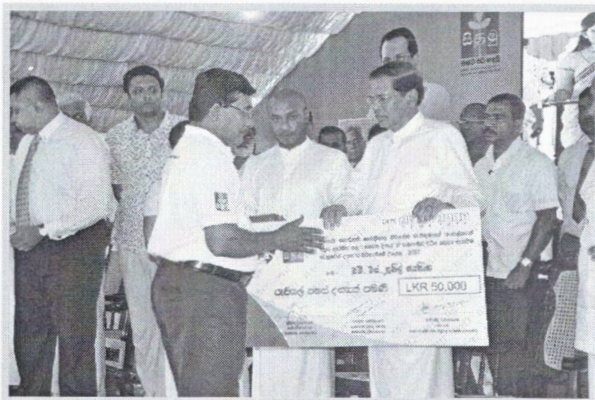
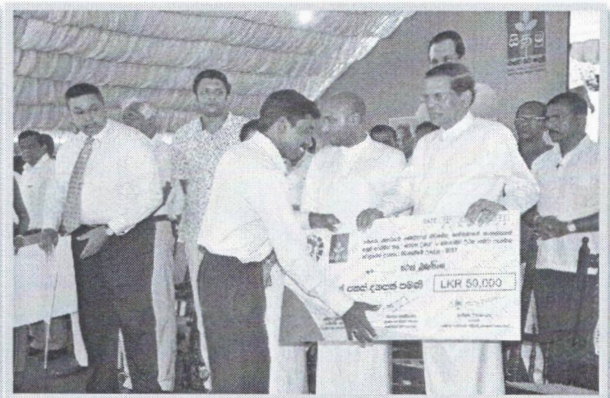
SOCIAL, WELFARE AND RELIGIOUS ACTIVITIES

SOCIAL AND WELFARE

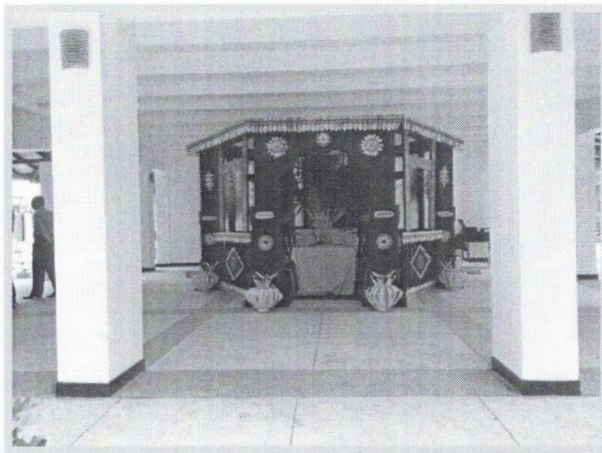
The institute continued its welfare activities to build up employee relations and good will among staff and their families. As per the direction of president's office, employs day was held in 8th April 2016. The same day evening, the welfare society of the institute held staff and their family get-together.



Appreciation of long service was done in parallel to "Workers Day" event. The cheque worth of Rs. 50 000.00 was given to those who have completed 25 years of service to the institute by the president, His Excellence Maithreepala Sirisena.



IPHT celebrate 17 years of establishment as Institute of Post-Harvest Technology in 19th June 2000 as a successor to the Rice Processing Research and Development Centre of Paddy Marketing Board. To mark this and increase team idea, networking people in the area, "Sarvarathrika Pirith sajjayanaya" was held in 19th June 2017.



HUMAN RESOURCES

The total permanent staff of the Institute was 156. This total comprised of 52% in the technical divisions and 48% in the supporting divisions. Research, Engineering and Extension are the main divisions of the institute.

As at 31st December 2017

Staff	Total Cadre	Filled Cadre	Vacant Cadre
Principal Research Officer	02	-	02
Chief Mechanical Engineer	01	01	-
Principal Extension Officer	01	-	01
Senior Research Officer	03	02	01
Senior Mechanical Engineer	02	02	-
Senior Extension Officer	01	01	-
Research Officer	14	14	-
Mechanical Engineer	06	02	04
Extension Officer	05	03	02
Economist	01	-	01
Total	36	25	11

No.	Staff	Total Cadre	Filled Cadre	Vacant Cadre
Scientific staff				
01	R &D staff	36	25	11
02	Support staff	52	41	11
03	Librarian	01	01	-
	Total	89	67	22
Supporting staff				
01	Senior Managers	03	01	02
02	Accountant	01	01	-
03	Administrative officer	02	01	01
04	Internal Auditor	01	01	-
05	Support staff	58	58	-
	Total	65	62	03

Staff according to the specialized area and Gender

No.	Area of Specialized	Male	Female	Total
01	Agriculture	06	10	16
02	Engineering	03	02	05
03	Science	01	01	02
04	Food Science	01	01	02
05	Total	11	13	25

Expertise of Research and Technology Transfer Staff

In the area of post-harvest technology, the institute has good expertise in rice processing, grain storage and considerable expertise in fruit and vegetable, spice. The research and technology staff consists of engineers, agriculturist, chemist, microbiologist, food scientist. This help to analyses problems in different angles.

As at 31st December 2017

DIRECTOR/CHIEF EXECUTIVE OFFICER

Eng. Mahesh Dissanayake

BSc. Eng, MEng. CEng. MIE(SL), PhD (Reading)

ADDITIONAL DIRECTOR (RESEARCH AND TECHNOLOGY TRANSFER)

Eng. H.M.A.P. Rathnayake

BSc. Eng, MEng. CEng. MIE(SL)

ADDITIONAL DIRECTOR (ADMINISTRATION AND FINANCE)

Mr. R.A.K.P.Ramanayake

BSc. Mgt. Licentiate Certificate, ICA, MIPFDA

RESEARCH DIVISION

HOD | Principle Research Officer

Dr. (Mrs.) Nilanthi Wijewardhane

BSc. Agric, MSc. Agric, MPhil, PhD

Research Officers

Mr. H.R.M.G.C. Thilakarathna

B.Sc. in Food Science & Technology. Ph.D in Food sci. & Tech. (Reading)

Mrs. Y.M.P. Samarasinghe

B.Sc. Agric. MSc in Geo Informatics

Mr. B. A. M. S. Kumara

B.Sc. Agric. M.Sc.(Organizational Management)

Miss. T. M.A. N. Weerasinghe

B.Sc. in Export Agriculture (special), M.Sc. in Food Science & Technology (Reading)

Miss G. E. D. A. M. Jayarathna

B.Sc. Food Science & Tech. (special), M.Sc. in Food Science and Nutrition (reading)

Miss D. T. H. P. Rathnaweera

B.Sc. Agric. M.Sc. in IWRM (Reading)

Miss W. M. S. S. K. Weerasinghe

B.Sc. Agric. M.Sc. in Organizational Management

Mrs W. B. W. M.R. C. P. Aluwihare
B.Sc. Agric.

Mr K. D. T. Hettige
B.Sc. Agric., M.Sc. in Food and Nutrition

Mrs G. D. N. Menike
B.Sc. Agric. M.Phil. in Molecular and Applied Microbiology(Plant Protection)

ENGINEERING SERVICE DIVISION

HOD | Mechanical Engineer

Eng. B.D.M.P.Bandara
BSc. Eng, MEng. CEng. MIE(SL)

Chief Mechanical Engineer

Mrs. D. P. Senanayake
BSc. Eng, MPhil. CEng. MIE(SL)

Mechanical Engineers

Mrs. C. K. Marasinghe
B.Sc. Eng., M.Phil. (Eng.), AMIE (SL)

Mr. Y.G. Harischandra
B.Sc.Eng. M.Sc. (Reading), AMIE (SL)

EXTENSION DIVISION

HOD | Senior Extension Officer

Mrs. Chamindi Dissanayake
BSc. Agric, MEng Agric, PGDIP Agric, Mphil. Agric, PhD (reading)

Extension Officer

Mr. P.G. Lalith Wasantha
B.Sc.Sp.Agric., MSc Agric.

Mr. M.M. Herath
B.Sc Agric., Dip. in Counseling

Mr. Somakanthan
B.Sc Agric., MSc Agric.

LABORATORY SERVICE DIVISION

HOD | Research Officer

Mr. Chaminda Gunawardhane
BSc. MSc.,

Technological Officer

Mr. Champika Kumara

DEVELOPMENT PROJECT DIVISION

HOD | Senior Research Officer

Mr. W.M.C.B.Wasala
BSc. Agric, MSc. Agric, MPhil, PhD

PLANNING AND MONITORING DIVISION

HOD | Research Officer

Mrs. Ruwanka Rathnayake
BSc.Sp. (Botany), MSc., PhD (Reading)

ADMINISTRATION DIVISION

HOD | Additional Director (Admin & Finance)

Mr. R.A.K.P.Ramanayake
BSc. Mgt. Licentiate Certificate, ICA, MIPFDA

Administrative Officer

Mr. Janaka Subasinghe
BSc

Mr.B.C.D.Bandara
BSc (Management)

FINANCE DIVISION

HOD | Accountant

Mr. Niluka Illangasinghe
B.Com(Sp.), APFA,ACPM, MBA(Reading)

INFORMATION TECHNOLOGY DIVISION

HOD | Mechanical Engineer

Eng. (Mrs.) D.M.S.P. Bandara
BSc. Eng, MEng. CEng. MIE(SL)

Librarian

Keshala Priyadarshani
BSc

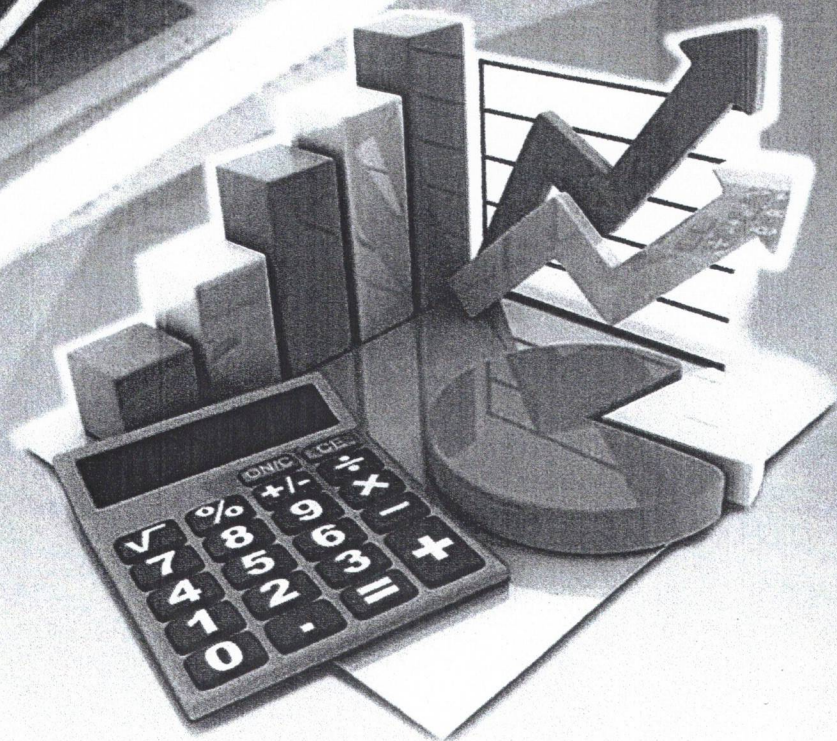
INTERNAL AUDIT DIVISION

HOD | Internal Auditor

Mr. R.M.D.Rathnayake
BSc (Accounting)



FINANCIAL STATEMENTS FOR THE YEAR ENDED DECEMBER 31, 2017



**INSTITUTE OF POST HARVEST TECHNOLOGY
(MINISTRY OF AGRICULTURE)
JAYANTHI MAWATHA
ANURADHAPURA**

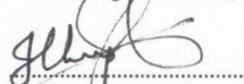
INSTITUTE OF POST HARVEST TECHNOLOGY
STATEMENT OF FINANCIAL POSITION AS AT DECEMBER 31, 2017

	NOTES	2017 RS.	2016 RS.
ASSETS			
NON - CURRENT ASSETS			
Property, Plant and Equipment	6	191,032,336.83	147,286,980.78
Investments	7	30,000,000.00	30,000,000.00
Intangible assets	8	7,840.00	7,840.00
Other non-current assets	9	9,615,807.67	10,182,986.29
TOTAL NON CURRENT ASSETS		230,655,984.50	187,477,807.07 ✓
CURRENT ASSETS			
Cash and cash equivalents	10	27,861,853.60	29,803,950.91
Receivables	11	48,921,925.28	2,612,360.26
Inventories	12	1,274,712.95	1,181,080.20
Advances	13	321,176.07	208,021.50
Other current assets	14	1,446,372.27	675.00
TOTAL CURRENT ASSETS		79,826,040.17	33,806,087.87
TOTAL ASSETS		310,482,024.67	221,283,894.94 ✓
EQUITY AND LIABILITIES			
EQUITY			
	15		
Initiate Capital		69,907,594.42	69,907,594.42
Government Grant		8,368,214.00	8,368,214.00
Foreign Loan		72,750,229.02	72,750,229.02
General Capital Fund		114,690,471.79	105,910,250.00
Assets Revaluation Surplus		34,702,988.00	
Accumulated Surplus / (Deficit)		(89,211,227.47)	(81,238,009.36)
TOTAL EQUITY		211,208,269.76	175,698,278.08 ✓
LIABILITIES			
NON-CURRENT LIABILITIES			
Provision for Gratuity Fund	16	33,945,662.45	28,198,189.00
TOTAL NON-CURRENT LIABILITIES		33,945,662.45	28,198,189.00 ✓
CURRENT LIABILITIES			
Payables	17	65,328,092.46	17,387,427.86
TOTAL CURRENT LIABILITIES		65,328,092.46	17,387,427.86 ✓
TOTAL LIABILITIES		99,273,754.91	45,585,616.86
TOTAL EQUITY AND LIABILITIES		310,482,024.67	221,283,894.94 ✓

The accounting policies and notes from page 05 To 20 an integral part of these Financial Statements.

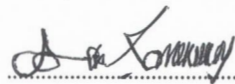
These Financial Statements are in compliance with the requirements of the Sri Lanka Public Sector

Accounting Standards (SLPSAS).



F.M. N.P. Illangasinghe

Accountant/HOD - Finance



R.K.A.P. Ramanayake

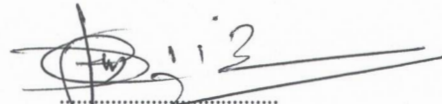
Additional Director (Admin & Finance)

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.



T. M. R. Dissanayake
Director /CEO (Actg)



Ravinda E. Dissanayake
Chairman

INSTITUTE OF POST HARVEST TECHNOLOGY
STATEMENT OF FINANCIAL PERFORMANCE FOR THE YEAR ENDED
DECEMBER 31, 2017

	NOTES	2017 RS.	2016 RS.
REVENUE			
General Treasury Fund - Recurrent	18	95,083,608.41	94,750,000.00
Transfers from other agencies	19	30,639,749.80	23,496,846.83
Self Generated Income	21	9,794,232.15	4,782,765.28
Other Income	22	4,411,173.77	3,812,964.27
Amortization of Capital Grants	20	17,755,504.80	-
TOTAL REVENUE		157,684,268.93	126,842,576.38 ✓
EXPENSES			
Wages, salaries and employee benefits	23	88,029,648.15	74,303,636.99
Supplies and consumables used	24	15,633,438.51	12,992,082.47
Depreciation and amortization expense	25	17,755,504.80	16,427,755.10
Other expenses	26	13,878,294.96	9,664,534.48
Project Expenses	27	30,551,345.74	22,923,401.86
Finance costs	28	29,109.37	37,611.64
TOTAL EXPENSES		165,877,341.53	136,349,022.54
SURPLUS / (DEFICIT) FOR THE PERIOD		(8,193,072.60)	(9,506,446.16) ✓

The accounting policies and notes from page 05 To 20 an integral part of these Financial Statements.

INSTITUTE OF POST HARVEST TECHNOLOGY
CASH FLOW STATEMENT FOR THE YEAR ENDED DECEMBER 31, 2017

	NOTES	2017 RS.	2016 RS.
CASH FLOWS FROM OPERATING ACTIVITIES			
Surplus/(Deficit)		(8,193,072.60)	(9,506,446.16) ✓
Effect to Cash flow from Adjustments of Accumilated Surplus	29	175,826.49	
Non - Cash Movements			
Depreciation		17,755,504.80	16,427,755.10 ✓
Amortization of Capital Grants		(17,755,504.80)	-
Interest Income	21.8	(3,356,255.21)	(2,862,095.29) ✓
Increase/(Decrease) in payables	30	47,940,664.60	(6,917,209.12) ✓
Increase/(Decrease) in Provisions for Gratuity Fund	31	5,747,473.45	591,587.85 ✓
(Increase)/Decrease in other current assets	32	(47,962,049.61)	(688,291.71) ✓
Net cash flows from operating activities		(5,647,412.88)	(2,954,699.33)
CASH FLOWS FROM INVESTING ACTIVITIES			
Purchase of Property, Plant and Equipment	33	(26,753,844.85)	(7,035,651.43) ✓
(Increase)/Decrease non current assets	34	567,178.62	19,994,416.67 ✓
Net interest Received	21.8	3,356,255.21	2,862,095.29 ✓
Net cash from investing activities		(22,830,411.02)	15,820,860.53 ✓
CASH FLOWS FROM FINANCING ACTIVITIES			
Capital Grants		26,535,726.59	5,000,000.00
Net cash flows from financing activities		26,535,726.59	5,000,000.00
Net increase/(decrease) in cash equivalents		(1,942,097.31)	17,866,161.20
Cash and cash equivalents at beginning of period	35	29,803,950.91	11,937,789.71 ✓
Cash and cash equivalents at end of period	36	27,861,853.60	29,803,950.91 ✓

The accounting policies and notes from page 05 To 20 an integral part of these Financial Statements.

Attributable to owners of the controlling entity										Total net assets	
				Initiate capital	Gov.grant	Foreign loan	Funds from Gen. Trea.	Assets Revaluation Surplus	Accumulated surpluses/(deficitts)		
				Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		
B/B/F as at Dec.31, 2016					69,907,594.42	8,368,214.00	72,750,229.02	105,910,250.00	-	(81,238,009.36)	175,698,278.08
Change in net assets for 2017											-
Capital Grants								26,535,726.59			26,535,726.59
Amotization of Deffered Income								(17,755,504.80)		-	(17,755,504.80)
Assets Revaluation Surplus									34,702,988.00		34,702,988.00
Changes in Accumulated Surplus										219,854.49	219,854.49
Surplus / (Deficit) for the period										(8,193,072.60)	(8,193,072.60)
Balance as at Dec. 31, 2017					69,907,594.42	8,368,214.00	72,750,229.02	114,690,471.79	34,702,988.00	(89,211,227.47)	211,208,269.76

The accounting policies and notes from page 05 To 20an integral part of these Financial Statements.

INSTITUTE OF POST HARVEST TECHNOLOGY

NOTES TO THE FINANCIAL STATEMENTS

1. Reporting Entity

1.1 Corporate Information

Institute of Post Harvest Technology is a body corporate, established on 19th June 2000 by the Extraordinary Gazette of the Democratic Socialist Republic of Sri Lanka No.1137/10 under the provisions of the State Agricultural Corporations Act. No. 11 of 1972

1.2 Principal Activities and Nature of Operations

The Institute carrying out post harvest research and development activities pertaining to cereals, pulses, oil seeds, other field crops, fruits, vegetables and spice crops.

1.3 Approval of Financial Statements by the Board of Directors

The Financial Statements of the Institute have been authorized for issue by the Board of Directors

2. Basis of Preparation

2.1 Statement of Compliance

The Financial Statements of the Institute have been prepared and presented in accordance with Sri Lanka Public Sector Accounting Standards (SLPSAS).

2.2 Responsibility of Financial Statements

The Board of Directors is responsible for the preparation and fair presentation of the Financial Statements of the Institute as per the Sri Lanka Public Sector Accounting Standards.

The Board of Directors acknowledges this responsibility in the Statement of Financial Position of the Institute.

2.3 Basis of Measurement

The Financial Statements have been prepared on the historical cost basis.

2.4 Functional and Presentation of Currency

The Financial Statements are presented in Sri Lankan Rupees which is the Institute's functional and presentation currency except when otherwise indicated.

2.5 Presentation of Financial Statements

The assets and liabilities of the Institute presents in its Statement of Financial Position are grouped by nature and listed in an order that reflects their relative liquidity and maturity pattern. No adjustments have been made for inflationary factors affecting the Financial Statements.

2.6 Materiality and Aggregation

Each material class of similar items is presented separately in the Financial Statements. Items of dissimilar nature or function are presented separately unless they are immaterial as permitted by Sri Lanka Public Sector Accounting Standards SLPSAS 1 'Presentation of Financial Statements'.

2.7 Offsetting

Assets and liabilities and income and expenses are not set-off unless permitted by the Sri Lanka Public Sector Accounting Standards.

2.8 Significant Accounting Judgements, Estimates and Assumptions

2.8.1 Going Concern

The Institute's management has made an assessment of its ability to continue as a going concern and is satisfied that it has the resources to continue in operations for the foreseeable future. Furthermore, management is not aware of any material uncertainties that may cast significant doubt upon the Institute's ability to continue as a going concern. Therefore, the Financial Statements continue to be prepared on the going concern basis.

2.8.2 Useful Lifetime of the Property Plant and Equipment

Useful economic lives of Property, Plant and Equipment are estimated as disclosed in Note 3.1 to the Financial Statements.

3. Significant Accounting Policies - Recognition of Asset and Liabilities

Accounting policies set out below have been applied consistently to all periods presented in the Financial Statements of the Institute unless otherwise indicated. Further, comparative year's information has been presented.

3.1 Property Plant & Equipment

Property, plant and equipment are tangible items that are held for use in the production or supply of goods or services, for rental to others or for administrative purposes and are expected to be used during more than one period. The Institute applies the requirements of Sri Lanka Public Sector Accounting Standard – SLPSAS 7 - 'Property, Plant and Equipment' in accounting for these assets.

Basis of Recognition

Property, Plant and Equipment are recognised if it is probable that future economic benefits service potential associated with the asset will flow to the Institute and the cost of the asset can be reliably measured. The institute policy recognition of property, plant and equipment is the value higher than Rs.5000.

Measurement

An item of Property, Plant and Equipment that qualifies for recognition as an asset is initially measured at its cost. Cost includes expenditure that is directly attributable to the acquisition of the asset. The cost of self constructed assets includes the cost of materials and direct labour, any other costs directly attributable to bringing the asset to a working condition for its intended use and the costs of dismantling and removing the items and restoring the site on which they are located. Purchased software that is integral to the functionality of the related equipment is capitalised as part of computer equipment. When parts of an item of property or equipment have different useful lives, they are accounted for as separate items (major components) of property and equipment.

Cost Model

The Institute applies cost model to all Property, Plant and Equipment, and records at cost of purchase or construction together with any incidental expenses there on less accumulated depreciation and any accumulated impairment losses. Such cost includes the cost of replacing part of the equipment when that cost is incurred, if the recognition criteria are met.

Subsequent Cost

The subsequent cost of replacing a component of an item of Property, Plant and Equipment is recognised in the carrying amount of an item, if it is probable that the future economic benefits embodied within that part will flow to the Institute and it can be reliably measured. The costs of the day-to-day servicing of Property, Plant and Equipment are charged to the statement of Financial Performance as incurred. Costs incurred in using or redeploying an item is not included under carrying amount of an item.

Depreciation

Depreciation is recognised in profit or loss on a straight-line basis over the estimated useful lives each part of an item of Property and Equipment since this method most closely reflects the of expected pattern of consumption of the future economic benefits embodied in the asset.

Freehold land is not depreciated. The estimated useful lives are as follows:

<u>Asset Category</u>	<u>Period</u>
Building	40 Years
Plant & Machinery	13.3 Years
Office Equipment	10 Years
Lab & Research Equipment	10 Years
Other Equipment	10 Years
Furniture	10 Years
Electrical & Other Fittings	10 Years
Library Books	10 Years
Computer & Accessories	4 Years
Telephone & Fittings	5 Years
Vehicles	5 Years

Assets Revaluation

Class of vehicle was revalued as at 31/12/2017. Revalued amount of vehicle is shown in the books. Revaluation surplus was credited to revaluation surplus A/C.

Assets Disposal

Tollaly depreciated asset which was not physically, agro - farm was removed from the books.

3.2 Events after the Reporting Period

Events after the Reporting period are those events, favorable and unfavorable, that occur between the Reporting date and the date when the Financial Statements are authorized for issue. In this regard, all material and important events that occurred after the Reporting period have been considered and appropriate disclosures are made in the the Financial Statements where necessary.

3.3 Inventories

Inventories are valued at lower of cost and net realizable value. Cost is dertermined on the FIFO basis and includes expenses incurred in acquiring the inventories and bringing them to their existing location and condition.

3.4 Employee benefits

Defined contribution plans - Employees' Provident Fund and Employees' Trust Fund

All employees who are eligible for Employees' Provident Fund contribution and Employees' Trust Fund contribution are covered by relevent contribution funds in the line with respective statutes and regulations. Employees contribute 10% and, Institute contributes 12% and 3% of gross emoluments of employees to Employees' Provident Fund and Employees' Trust Fund respectively.

Defined Benefits Plan - Gratuity

A Defined Benefit Plan is a post-employment benefit plan other than a Defined Contribution plan as defined in Sri Lanka Accounting Standard LKAS 19 on "Employee Benefits". The Institute is liable to pay retirement benefits under the Payment of Gratuity Act, No. 12 of 1983. Provision has been made in the Financial Statements for retirement gratuity as Employee benefit liability after the 5 years of service for all employees. Gratuity plan defines an amount of benefit that an employee will receive on retirement, usually dependant on one or more factors such as years of service and compensation. The liability recognised in respect of employee benefit liability in the Statement of Financial position is the present value of the defined benefit obligation at the reporting date together with adjustments for unrecognized past service costs. The employee benefit liability is calculated annually.

3.5 Provisions

Provisions are recognised if, as a result of a past event the institute has a present legal or constructive obligation that can be estimated reliably and it is probable that an outflow of economic benefit will be required to settle the obligation. Provisions and liabilities are recognised in the Statement of Financial Position.

4. Significant Accounting Policies - Income and expense

4.1 Revenue Recognition

Revenue is recognised to the extent that it is probable that the economic benefits will flow to the Institute and such revenue can be reliably measured. All Government and other grants are recognised initially as Recurrent Grant and are then transferred into the Capital Grant which used for Capital needs. The Capital Grants are recognised initially as deferred income and are then recognised in profit or loss as Amortization of deferred income on a systematic basis over the useful life of the assets.

4.2 Borrowing Cost

All borrowing costs are expensed in the period in which they occur. Borrowing costs consist of interest and other costs that an entity incurs in connection with the borrowing of funds.

4.3 Tax Expense

As per the Sri Lanka Accounting Standard-LKAS 12 on 'Income Taxes', tax expense (tax income) is the aggregate amount included in determination of profit or loss for the period in respect of current and deferred taxes. Income tax expense is recognized in the Statement of Financial Performance except to the extent it relates to items recognised directly in equity or in Other Comprehensive Income (OCI), in which case it is recognised in equity or in OCI.

4.4 Research and Development Expenses

Research and Development expenses are allocated from capital budget. But Capital nature expenses are only recognised as assets. Recurrent nature expenses are charged to profit and loss.

5. Statement of Cash Flow

The Statement of Cash Flow has been prepared by using the 'Indirect Method', in accordance with Sri Lanka Public Sector Accounting Standards – SLPSAS 2 on 'Cash Flow Statements'

INSTITUTE OF POST HARVEST TECHNOLOGY
NOTES TO THE FINANCIAL STATEMENTS

06. Property Plant and Equipments

Description	Rs.												Total
	Building	Plant & Machinery	Office Equipment	Lab. & Research Equipment	Other Equipment	Furniture	Electric & Other Fittings	Library Books	Computer & Accessories	Telephone & Fittings	Vehicles	Agro - Farm	Total
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Balance at the beginning of the period	116,373,432.31	55,725,636.58	4,739,963.50	90,426,933.82	4,573,137.50	12,321,764.20	1,538,454.37	1,529,998.55	10,710,861.06	504,047.66	41,285,413.82	1,253,934.22	340,983,577.5
Additions during the year	4,632,337.85	120,554.50	18,295.00	6,927,830.00	11,991,665.00	2,861,712.50	113,550.00		87,900.00		39,815,000.00		66,568,844.8
Written off during the year									-	-	41,285,413.82	1,253,934.22	42,539,348.0
Balance at the end of the year	121,005,770.16	55,846,191.08	4,758,258.50	97,354,763.82	16,564,802.50	15,183,476.70	1,652,004.37	1,529,998.55	10,798,761.06	504,047.66	39,815,000.00	-	365,013,074.4
Accumulated depreciation													
Balance at the beginning of the year	47,849,843.83	51,918,507.29	3,031,984.84	34,005,857.50	768,199.23	10,186,385.58	1,316,023.39	1,409,064.29	7,824,628.52	470,738.30	33,617,401.82	1,253,934.22	193,652,568.8
Charge for the year	2,893,918.88	436,017.96	308,574.35	8,009,214.76	1,647,416.75	680,271.25	51,603.70	40,944.10	1,118,240.00	13,303.05	2,556,000.00	-	17,755,504.8
written off during the year									-	-	36,173,401.82	1,253,934.22	37,427,336.0
balance at the end of the year	50,743,762.71	52,354,525.25	3,340,559.19	42,015,072.26	2,415,615.98	10,866,656.83	1,367,627.09	1,450,008.39	8,942,868.52	484,041.35	-	-	173,980,737.5
Carrying value as at 31st December 2017	70,262,007.45	3,491,665.83	1,417,699.31	55,339,691.56	14,149,186.52	4,316,819.87	284,377.28	79,990.16	1,855,892.54	20,006.31	39,815,000.00	-	191,032,336.8

	2017 (Rs.)	2016 (Rs.)
7 Investments - Deposits		
National Saving Bank 2- 0001- 21-28195 -Kollupitiya	10,000,000.00	10,000,000.00
National Saving Bank 2- 0001- 21-28187 -Kollupitiya	10,000,000.00	10,000,000.00
National Saving Bank 2- 0001-21-28179 -Kollupitiya	10,000,000.00	10,000,000.00
	30,000,000.00	30,000,000.00
8 Patent Certificate for the production of "Rice Based Instant Soup Cube", inovated by Mrs Hemanthika Jayawardhana.	7,840.00	7,840.00
9 Other Non - Current Assets		
Distress Loan	8,920,746.12	9,640,525.33
Special Loan	695,061.55	542,460.96
	9,615,807.67	10,182,986.29
10 Cash & Cash equivalents		
Bank of Ceylon - Torinton	4,780,171.51	5,795,171.51
People's Bank -Anuradhapura	13,215,927.11	17,459,429.11
Patty Cash	5,000.00	5,000.00
National Saving Bank 1- 0005- 04-9129-2-Anuradhapura	798,133.30	766,106.46
National Saving Bank 1- 0001- 07-3208-7-Kollupitiya	9,062,621.68	5,778,243.83
	27,861,853.60	29,803,950.91
11 Receivables		
Debtors Control Account	491,927.39	491,927.39
Accrued Income	48,429,997.89	2,120,432.87
	48,921,925.28	2,612,360.26
11.1 Debtors Control Account		
Others	490,708.39	490,708.39
Sale -stole	1,219.00	1,219.00
	491,927.39	491,927.39
11.2 Accrued Income		
Genaral	1,993,841.28	1,344,884.44
Regional Economic Advancement Project 1 -Matale	49,354.70	49,354.70
Sri Lanka Council forAgricultural Research Policy	30,940.67	30,940.67
Receivables for Mahaweli	504,800.00	504,800.00
Receivables for NSF	-	93,056.77
Receivables for Ampara	-	97,396.29
- Receivables for TOT	113,400.00	
- Receivable for Supply & Value Chain	176,832.00	
- Receivable for Mango Project	17,391,408.28	
- Receivables for Organic	5,407,920.00	
- Receivable for Guava Project	7,172,371.71	
- Receivable for Papaya Project	4,027,194.90	
- Receivable for Banana Project	3,544,880.70	
- Receivable for Green chillies Project	52,785.00	
- Receivable for Edible Oil Project	335,908.65	
- Receivable for Heavy metal Project	5,350,000.00	
- Receivable for Wap Magula Event	2,278,360.00	
	48,429,997.89	2,120,432.87

INSTITUTE OF POST HARVEST TECHNOLOGY
NOTES TO THE FINANCIAL STATEMENTS

		2017	2016
		(Rs.)	(Rs.)
12 Inventories			
Noodles		29,246.40	31,277.40
Rice Mill -Rice		1,606.50	1,606.50
Stores -Paddy		34,119.62	34,119.62
Research projects		101,500.00	294,968.00
Machinery - Raw material		4,821.00	7,291.00
Machinery		444,745.00	519,745.00
Diesel - Factory		111,434.48	111,434.48
- Generator		39,107.00	34,941.00
Stationary Stock		261,091.95	103,032.20
Consumable Stock		247,041.00	42,665.00
		1,274,712.95	1,181,080.20 ✓
13 Advances			
Festival		67,050.35	52,800.35
Traveling		37,979.40	28,199.40
Interring Advance		199,039.72	109,915.15
Interring Advance - Head Office		17,106.60	17,106.60
		321,176.07	208,021.50 ✓
14 Other current assets			
Services		675.00	675.00
House Rent Deposit		950,000.00	
Work in Progress		495,697.27	
		1,446,372.27	675.00 ✓
15 Equity			
Initiate Capital		69,907,594.42	69,907,594.42
Government Grant		8,368,214.00	8,368,214.00
Foreign Loan		72,750,229.02	72,750,229.02
General Fund - Capital		114,690,471.79	105,910,250.00
Asset Revaluation Surplus		34,702,988.00	
Accumulated Surplus / (Deficit)		(89,211,227.47)	(81,238,009.36)
		211,208,269.76	175,698,278.08 ✓
16 Provision For Gratuity Fund			
Gratuity fund		33,945,662.45	28,198,189.00
		33,945,662.45	28,198,189.00 ✓
Current Liabilities			
17 Payables			
Advances	17.1	1,779,328.14	1,345,752.48
Accrued Expenses	17.2	50,591,650.37	4,814,931.77
Deposits	17.3	413,070.00	556,070.00
Retention	17.4	811,009.28	1,321,763.94
Creditors Control Account	17.5	11,346,409.04	8,962,284.04
Reciepts in advance	17.6	386,625.63	386,625.63
		65,328,092.46	17,387,427.86 ✓

INSTITUTE OF POST HARVEST TECHNOLOGY
NOTES TO THE FINANCIAL STATEMENTS

	2017	2016
	(Rs.)	(Rs.)
17.1 Advances - Suspense Account - General	201,090.56	201,090.56
- EPF	1,111,274.20	986,556.50
- ETF	151,537.39	134,530.43
- Stamp Fees	9,550.00	-
- Payee/WHT	296,466.81	20,065.81
Specail Salary Advance	9,409.18	3,509.18
	1,779,328.14	1,345,752.48 ✓
17.2 Accrued Expenses		
Accrued Tax for Interest	95,166.41	126,826.67
Accrued Expenses- General	5,924,468.17	4,687,975.10
Head Office creditor	130.00	130.00
- Payable for Wap Magula Event	2,278,360.00	
- Payable for NSF Project	175,000.00	
- Payable for Organic Method	5,407,920.00	
- Payable for Supply & Value Chain	150,370.00	
- Payable for Mango Project	16,267,643.28	
- Payable for Guava Project	7,172,371.71	
- Payable for Papaya Project	4,027,194.90	
- Payable for Banana Project	3,544,880.70	
- Payable for Green chillies Project	52,785.00	
- Payable for Edible Oil Project	335,908.65	
- Payable for Heavy metal Project	1,843,645.70	
- Payable for building	3,315,805.85	
	50,591,650.37	4,814,931.77 ✓
17.3 Deposits		
Tender - R&D	413,070.00	556,070.00
	413,070.00	556,070.00 ✓
17.4 Retention		
Contract Works	247,831.15	186,826.96
Unpaid - salary	268,724.39	268,724.39
Unpaid - salary - Head office	200.00	200.00
Cancelled cheques	154,981.74	726,740.59
Regional Economic Advancement Project 2 -Matale	139,272.00	139,272.00
	811,009.28	1,321,763.94 ✓
17.5 Creditors Control Account		
Other creditors - Various products	329,295.00	375,545.00
17.5.1 Plastic crates-Fund	640,900.00	2,687,630.00
Paboling Vassals-Fund	4,318,284.04	4,235,109.04
Sales of Old vehicles	6,057,930.00	1,664,000.00
	11,346,409.04	8,962,284.04 ✓
17.5.1 Plastic crates-Fund		
Balance as at 01.01.2017	2,687,630.00	10,353,965.95
paid to ministry	2,058,530.00	9,251,445.95
	629,100.00	1,102,520.00
Plastic crates sales	11,800.00	1,585,110.00
	640,900.00	2,687,630.00
17.6 Reciepts in Advance		
Reciepts in advance - Deyata kirula	285,486.80	285,486.80
Reciepts in advance - Saarc	101,138.83	101,138.83
	386,625.63	386,625.63 ✓

INSTITUTE OF POST HARVEST TECHNOLOGY
NOTES TO THE FINANCIAL STATEMENTS

	2017 (Rs.)	2016 (Rs.)
18 General Treasury Fund - Recurrent	95,083,608.41	94,750,000.00 ✓

Promised recurrent & capital grants were released by national budget department. But relevant imprest was not given by TOD.

19 Transfers from Other Agencies		
- SAARC	-	1,238,309.79
- NSF	639,477.23	788,605.01
- PPR	-	25,000.00
- Mahaweli project	-	1,009,600.00
- TOT	947,481.00	5,137,621.78
- Mango Project	14,008,503.28	8,663,004.26
- Organic Method	-	4,435,193.20
- Exhibition - BMICH	273,313.42	97,061.50
- Exhibition - Ampara	-	194,951.29
- Govisathiya - Dambulla	-	1,907,500.00
- Supply chain	676,832.00	
- Banana Project	2,514,191.75	
- Papaya Project	3,648,754.95	
- Guava Project	4,622,924.71	
- Green Chillies	484,181.95	
- Edible Oil	545,729.51	
- Wap Magula Event	2,278,360.00	
	30,639,749.80	23,496,846.83 ✓

20 Amortization of Capital Grants	
Buildings	2,893,918.88
Plant & Machinery	436,017.96
Office Equipment	308,574.35
Laboratory & Research Equipment	8,009,214.76
Other Equipment	1,647,416.75
Furniture & Fittings	680,271.25
Electric & Other Fittings	51,603.70
Computer & Accessories	1,118,240.00
Telephone & Fittings	13,303.05
Library Books	40,944.10
Vehicles	2,556,000.00
	17,755,504.80

INSTITUTE OF POST HARVEST TECHNOLOGY
NOTES TO THE FINANCIAL STATEMENTS

	2017 (Rs.)	2016 (Rs.)
21 Self Generated Income		
Machinery Sales	(50,886.50)	449,735.00
Hostel Income - Accomodation	2,872,795.00	2,254,309.46
Hostel Income - Food & Beverage	321,214.75	
Training Program	701,920.11	653,468.82
Consultancy fees	214,425.60	199,339.00
Machinary Certificate Training Course	105,594.00	-
Rice Cream Sales	-	6,968.00
Auditorium fees	1,565,850.00	1,170,870.00 ✓
Sale of Publications	16,400.00	31,795.00 ✓
sales of Garden	3,600.00	4,800.00 ✓
Sample test fees	366,700.00	11,480.00 ✓
Sticker Income	282,740.00	
Income from Laboratory Services	3,393,879.19	
	<u>9,794,232.15</u>	<u>4,782,765.28</u> ✓
22 Other Income		
Interest Income	3,356,255.21	2,862,095.29
House Rent	394,750.00	386,750.00
General Income	622,318.76	537,163.15
No Pay	3,451.80	19,555.83
Sales of By products	34,398.00	6,420.00
Fines	-	980.00
	<u>4,411,173.77</u>	<u>3,812,964.27</u> ✓
21.1 Machinery Manufacturing Trading Profit & Loss Account		
Machinery Sales Parboiling Vessels	-	
Machinery Sales - Rice Flake Machines	275,000.00	275,000.00
Raw Material Balance as at 1.1.2017	7,291.00	
Add: Purchases Raw material	248,416.50	
	<u>255,707.50</u>	
Raw Materials Balance as at 31.12.2017	4,821.00	
Machinery Manufacturing Cost C/F	<u>250,886.50</u>	
Machinery Balance as at 1.1.2017	519,745.00	
Machinery Manufacturing Cost B/F	250,886.50	
	<u>770,631.50</u>	
Add: Purchases of Machineries	-	
	<u>770,631.50</u>	
Machinery Balance as at 31.12.2017	444,745.00	
Production Cost -Sale of Machinery	<u>325,886.50</u>	<u>325,886.50</u>
Profit		<u>(50,886.50)</u>

INSTITUTE OF POST HARVEST TECHNOLOGY
NOTES TO THE FINANCIAL STATEMENTS

	2017 (Rs.)	
21.2 Hostel Income - Accomodation		
Income	2,872,795.00	
Expenditure	-	
		<u>2,872,795.00</u>
21.3 Hostel Income - Food & Beverage		
Income	2,278,339.75	
Expenditure	1,957,125.00	
		<u>321,214.75</u>
21.4 Training Program		
Income	1,040,858.25	
Expenditure	338,938.14	
		<u>701,920.11</u>
21.5 Consultancy fees		
Income	421,926.00	
Expenditure	207,500.40	
		<u>214,425.60</u>
21.6 Machinery Certificate Training Income		
Machinery Certificate Training Income	171,300.00	
Machinery Certificate Training Expenses	65,706.00	
		<u>105,594.00</u>
21.7 Income from Laboratory Services		
Expenses	5,350,000.00	
	1,956,120.81	
		<u>3,393,879.19</u>
21.8 Interest Income		
NSB 1-0005-04-9129-2 A/pura	32,026.84	
NSB 1-0001-07-3208-7 Kollu	276,354.24	
NSB 2-0001-21-28187 Kollu	968,082.20	
NSB 2-0001-21-28195 Kollu	968,082.20	
NSB 2-0001-21-28179 Kollu	968,082.20	3,212,627.68
With Holding Tax		
NSB 1-0005-04-9129-2 A/pura	-	
NSB 1-0001-07-3208-7 Kollu	22,108.33	
NSB 2-0001-21-28187 Kollu	77,446.58	
NSB 2-0001-21-28195 Kollu	77,446.58	
NSB 2-0001-21-28179 Kollu	77,446.58	254,448.07
Banks Net Interest Income		<u>2,958,179.61</u>
Interest Income Other		
Special advance Interest	8,044.64	
Distress Loan Interest	365,470.41	
Special Loan Interest	24,560.55	398,075.60
		<u>3,356,255.21</u>

INSTITUTE OF POST HARVEST TECHNOLOGY
NOTES TO THE FINANCIAL STATEMENTS

	2017 (Rs.)	2016 (Rs.)
EXPENSES		
23 Wages, salaries and employee benefits		
Salaries & Wages-Permanent staff	51,011,942.84	45,536,057.66
Casual staff	2,373,201.93	1,773,394.11
E.P.F.	7,566,985.92	6,692,816.26
E.T.F.	1,850,184.04	1,673,205.17
Life Allowance	11,719,110.00	10,774,496.51
Overtime and Holiday Pay	2,239,985.03	1,950,364.71
Other allowance	296,000.00	280,252.00
Research Allowances	1,907,874.68	1,219,645.37
Incentives	525,545.66	220,893.98
Gratuity	8,538,818.05	4,182,511.22
	88,029,648.15	74,303,636.99 ✓
24 Supplies and consumables used		
Printing and Stationery	1,245,989.50	1,019,126.97
Office Needs & Sundry expenses	1,906,826.55	1,089,656.68
Consumable for Research projects	835,707.49	908,417.52
Running expenses of Hostel and kitchen	290,184.00	813,696.00
Research Projects	1,104,491.41	859,958.06
Running expenses vehicles	3,582,411.13	2,293,875.94
Vehicles maintenance	3,441,558.10	2,880,608.54
Buildings Maintenance	2,888,032.91	2,369,949.62
Machinery Maintenance	338,237.42	756,793.14
	15,633,438.51	12,992,082.47 ✓
25 Depreciation		
Buildings	2,893,918.88	2,909,335.81
Plant & Machinery	436,017.96	456,164.06
Office Equipment	308,574.35	316,434.17
Laboratory & Research Equipment	8,009,214.76	7,794,561.89
Other Equipment	1,647,416.75	448,250.25
Furniture & Fittings	680,271.25	680,683.49
Electric & Other Fittings	51,603.70	40,248.70
Computer & Accceries	1,118,240.00	1,162,539.96
Telephone & Fittings	13,303.05	27,484.67
Library Books	40,944.10	36,052.10
Vehicles	2,556,000.00	2,556,000.00
	17,755,504.80	16,427,755.10 ✓

INSTITUTE OF POST HARVEST TECHNOLOGY
NOTES TO THE FINANCIAL STATEMENTS

	2017 (Rs.)	2016 (Rs.)
26 Other Expenses		
Traveling expenses-Domestic	850,944.25	806,249.17
Traveling expenses-Foreign	1,399,555.32	1,098,749.95
Staff tea	761,153.50	451,006.29
Periodicals, journals and news papers	73,240.00	403,684.50
Seminars	80,000.00	105,357.50
Training Programs	-	805,182.65
Entertainment	687,597.11	368,378.98
Contract Labour	208,500.00	81,600.00
Welfare	-	4,000.00
Insurance and licenses	563,403.65	442,223.96
Telecommunication	2,592,792.70	1,438,057.61
Postal charges	111,811.00	101,216.00
Electricity	1,836,336.26	1,502,466.77
Water,	1,370,884.12	557,184.76
Rent	1,224,956.00	301,748.00
Lease rental for vehicles	1,209,800.00	
Rates and Taxes	-	288,960.36
Exhibition	19,969.40	12,445.00
Publication	189,750.00	7,000.00
Human Resources Development	375,598.65	415,022.98
Audit fees	250,000.00	250,000.00
Leagal Charges	-	-
Uniform Allowances	72,003.00	224,000.00
	13,878,294.96	9,664,534.48
27 Project Expenses		
Expenses for SAARC	-	1,238,309.79
Expenses for NSF Project	546,093.12	788,605.01
Expenses for Mahaweli Project	-	465,392.73
Expenses for Development project - TOT	947,481.00	5,131,321.78
Expenses for Development project - Mango	14,008,503.28	8,663,004.26
Expenses for Development project - Organic	4,980.00	4,435,193.20
Expenses for Development project - Supply chain	676,832.00	
Expenses for Banana Project	2,514,191.75	
Expenses for Papaya Project	3,648,754.95	
Expenses for Guava Project	4,622,924.76	
Expenses for Green Chillies Project	484,181.95	
Expenses for Edible Oil Project	545,729.51	
Exhibition - BMICH	273,313.42	99,123.80
Exhibition - Ampara		194,951.29
Exhibition - Govisathiya - Dmbulla		1,907,500.00
Wap Magula Event Expenses	2,278,360.00	
	30,551,345.74	22,923,401.86
28 Finance Costs		
	29,109.37	37,611.64
	29,109.37	37,611.64

INSTITUTE OF POST HARVEST TECHNOLOGY
NOTES TO THE FINANCIAL STATEMENTS

		2017 (Rs.)	2016 (Rs.)
29 Effect to Cash flow from Adjustments of Accumilated Surplus			
Credited Amount to Accumilated Surplus		654,005.00	
Debited Amount to Accumilated Surplus		(434,150.51)	
		<u>219,854.49</u>	
Amount not effected to cash flow	48,920.00		
	(4,892.00)	44,028.00	
Cash flow increase		<u><u>175,826.49</u></u>	
30 Payables			
Advances	17.1	1,779,328.14	1,345,752.48
Accrued Expenses	17.2	50,591,650.37	4,814,931.77
Deposits	17.3	413,070.00	556,070.00
Retention	17.4	811,009.28	1,321,763.94
Creditors Control Account	17.5	11,346,409.04	8,962,284.04
Reciepts in advance	17.6	386,625.63	386,625.63
		<u><u>65,328,092.46</u></u>	<u><u>17,387,427.86</u></u> ✓
Balance as at 1.1.2017		17,387,427.86	24,304,636.98
Less : Balance as at 31.12.2017		65,328,092.46	17,387,427.86
Increase / Decrease Liabilities		<u><u>47,940,664.60</u></u>	<u><u>(6,917,209.12)</u></u> ✓
31 Non- Current Liabilities			
Provision For Gratuity Fund			
Balance as at 1.1.2017	16	28,198,189.00	27,606,601.15
Less : Balance as at 31.12.2017		33,945,662.45	28,198,189.00
Increase / (Decrease) Liabilities		<u><u>5,747,473.45</u></u>	<u><u>591,587.85</u></u> ✓
32 Current Assets			
Stocks	12	1,274,712.95	1,181,080.20
Advances	13	321,176.07	208,021.50
Deposits	14	1,446,372.27	675.00
Debtors Control Account	11.1	491,927.39	491,927.39
Accrued Income	11.2	48,429,997.89	2,120,432.87
		<u><u>51,964,186.57</u></u>	<u><u>4,002,136.96</u></u> ✓
Balance as at 1.1.2017		4,002,136.96	3,313,845.25
Less : Balance as at 31.12.2017		51,964,186.57	4,002,136.96
Increase / Decrease Current Assets		<u><u>47,962,049.61</u></u>	<u><u>688,291.71</u></u> ✓
33 Property,Plant and Equipment			
Additions during the year		66,568,844.85	18,629,436.14
Asset Revalued Amount		(39,815,000.00)	(11,593,784.71)
Assets increase through cash flow during the year		<u><u>26,753,844.85</u></u>	<u><u>7,035,651.43</u></u> ✓

INSTITUTE OF POST HARVEST TECHNOLOGY
NOTES TO THE FINANCIAL STATEMENTS

	2017 (Rs.)	2016 (Rs.)
34 Investment - Deposits		
National Saving Bank 2- 0001- 21-28195 -Kollupitiya	10,000,000.00	10,000,000.00
National Saving Bank 2- 0001- 21-28187 -Kollupitiya	10,000,000.00	10,000,000.00
National Saving Bank 2- 0001-21-28179 -Kollupitiya	10,000,000.00	10,000,000.00
	30,000,000.00	30,000,000.00 ✓
Distress Loan	8,920,746.12	9,640,525.33
Special Loan	695,061.55	542,460.96
	9,615,807.67	10,182,986.29 ✓
Total Non - Current Assets	39,615,807.67	40,182,986.29
Balance as at 1.1.2017	40,182,986.29	60,177,402.96
Less : Balance as at 31.12.2017	39,615,807.67	40,182,986.29
Increase / Decrease Non Current Assets	(567,178.62)	(19,994,416.67) ✓
35 Cash & Cash equivalents at the beginning of period		
Cash at Bank		
Bank of Ceylon - Torinton	5,795,171.51	4,271,183.18 ✓
People's Bank -Anuradhapura	17,459,429.11	3,442,336.91
Patty Cash	5,000.00	5,000.00
National Saving Bank 1- 0005- 04-9129-2-Anuradhapura	766,106.46	700,085.52
National Saving Bank 1- 0001- 07-3208-7-Kollupitiya	5,778,243.83	3,519,184.10
Cash & Cash equivalents as at 01.01.2017	29,803,950.91	11,937,789.71
36 Cash & Cash equivalents at the ending of period		
Cash at Bank		
Bank of Ceylon - Torinton	4,780,171.51	5,795,171.51
People's Bank -Anuradhapura	13,215,927.11	17,459,429.11
Patty Cash	5,000.00	5,000.00
National Saving Bank 1- 0005- 04-9129-2-Anuradhapura	798,133.30	766,106.46
National Saving Bank 1- 0001- 07-3208-7-Kollupitiya	9,062,621.68	5,778,243.83
Cash & Cash equivalents as at 31.12.2017	27,861,853.60	29,803,950.91 ✓
37 That plastic crates given to farmers traders and collectors at 50% subsidy for promote packaging methods to transportation reduction to Post Harvest Losses in Fruits and Vegetables That stock not yet given to them Plastic crate stock 2017.12.31 at Cost		177,463.10
38 Assets transferred from the Paddy Marketing Board to the I.P.H.T. on 25 th October 2006. However, the Accounts shown in book values of the P.M.B. transferred Assets . The transferred Assets are being the P.M.B. transferred Assets . The transferred Assets are being revalued		
39 One of our building Contractors Ms K.D Ebert & Sons Holding (pvt) Limited have signed two agreements to contract building at Anuradhapura office They have done some extra work un authored the agreement. After stopping payment for the un authored extra work.They have sent two letter of demand on 28 th November 2006 demanding to pay Rs30,806,979.10 . One being Rs5,329,344.62 as payment of extra work and the other Rs5,477,634.48. Total payment 10,806,979.10 and their loss and damages Rs20,000,000.00 the total amount Rs30,806,979.10 requesting to pay whiting 14 days if not action will be taken But we have not responded the request neither they have not filed action against us according to the letter of demand		
40 The initiate Capitals of the INSTITUTE OF POST HARVEST TECHNOLOGY shown Rs 500,000,000.00		



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தேசிய கணக்காய்வு அலுவலகம்

NATIONAL AUDIT OFFICE



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எனது இல.
My No. }

NCP/AP/E/IPHT/01/
2017/14

ඔබේ අංකය
உமது இல.
Your No. }

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திகதி
Date }

04 November 2018

The Chairman,
Institute of Post-Harvest Technology

Report of the Auditor General on the Financial Statements of the Institute of Post-Harvest Technology for the year ended 31 December 2017 in terms of section 14(2)(c) of the Finance Act, No. 38 of 1971

The Audit of financial statements of the Institute of Post-Harvest Technology for the year ended 31 December 2017 comprising the statement of financial position as at 31 December 2017 and the statement of financial performance, statement of changes in equity and statement of cash flows for the year then ended and a summary of significant accounting policies and other explanatory information 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 Section 13(1) of the Finance Act, No.38 of 1971. My comments and observations which I consider should be published with the Annual Report of the Institute in terms of section 14(2) (c) of the Finance Act appear in this report. A detailed report in terms of Section 13(7) (a) of the Finance Act was issued to the Chairman on 16 October 2018.

1.2 Management's Responsibility for the Financial Statements

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



1.3 Auditor's Responsibility

My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with Sri Lanka Auditing Standards consistent with International Auditing Standards of Supreme Audit Institutions (ISSAI 1000 – 1810). Those standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatements.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgments, including the assessment of the risks of material misstatements of the financial statements, whether due to fraud or error. In making those risk assessments, the auditors considers internal control relevant to the Institute's preparation and fair presentation of the financial statements 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. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of financial statements. Sub-sections (3) and (4) of Section 13 of the Finance Act No. 38 of 1971 give discretionary powers to the Auditor General to determine the scope and extent of the Audit.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

1.4 Basis for Qualified Opinion

My opinion is qualified based on the matters described in paragraph 2.2 of this report.

2. Financial Statements

2.1 Qualified Opinion

In my opinion, except for the effects of the matters described in paragraph 2.2 of this report, the financial statements give a true and fair view of the financial position of the Institute of Post-Harvest Technology as at 31 December 2017 and its financial performance and cash flows for the year then ended in accordance with Sri Lanka Public Sector Accounting Standards.

2.2 Comments on Financial Statements

2.2.1 Sri Lanka Public Sector Accounting Standards

The following observations are made.

a) **Sri Lanka Public Sector Accounting Standard No. 02**

- (i) The cash proceeds of Rs. 6,057,930 from selling vehicles during the year under review had not been included under the Investment Activities of the Statement of Cash Flows according to the Paragraph 25(b) of the Standard.
- (ii) Although it had been recorded a sum of Rs.26,753,844 of cash outflow for purchasing of non-current assets under the Investment Activities of the Statement of Cash Flows, it had been included a sum of Rs.9,803,454 which the payment did not made by cash.

- b) Sri Lanka Public Sector Accounting Standard No. 07
-

Cost of Rs.63,410,396 assets were been continued to use even though the assets were fully depreciated due to not reviewing the useful life time for the non-current assets annually according to the Paragraph 65 of the Standard. Therefore, the above estimated error had not been corrected according to the Sri Lanka Public Sector Accounting Standard No. 03.

- c) Sri Lanka Public Sector Accounting Standard No. 09
-

Although the Inventories should be accounted to the lower of the cost or the net realizable value according to the Paragraph 15 of the Standard, It has been accounted 03 inventory balances amounting to Rs. 64,973 as inventory at the year-end since they do not have a physical substance and a realizable value being outdated over 3 years.

2.2.2. Accounting Deficiencies

The following observations are made.

- a) Deficit of the year and the accrued expenses as at 31 December 2017 had been understated due to not recording as accrued expenses for the bills of repairing 02 vehicles during the year under review amounting to Rs. 259,000 which had not been paid.
- b) A sum of Rs. 364,095 worth interest income for the year under review relevant to the 03 fixed deposits had not been accounted.

- c) It had not been recognized and adjustments had not been made accurately in the ledger accounts for the direct remittances of Rs. 686,153 received to a current account of the Institute.
- d) It had been made Rs. 6,331,500 of over provision for gratuity due to computation of the gratuity provision as at 31 December for the year under review based on Rs. 670,030 as the gross salary for an employee although the gross salary is 67,030.
- e) The Inventory value of 119 chemical inventory items had not been accounted as closing stock as at 31 December for the year under review.

2.3. Accounts Receivable and Payable

The following observations are made.

- a) Actions had not been taken during the year under review to recover aggregated sum of Rs. 572,222 receivable balances relating to 04 accounts over 05 years period according to the financial statements.
- b) Actions had not been taken during the year under review to recover aggregated sum of Rs. 321,174 relating to 04 advance accounts over 02 years period according to the financial statements.
- c) Rs. 268,724 of unpaid salaries had been recorded under Current Liabilities as at the end of the year under review without settling since the year 2004.
- d) Actions had not been taken to settle even though it had been recorded as a Liability in the Statement of Financial Position from the year 2009 without settling the contribution money of Rs. 4,318,284 charged from the beneficiaries to the Agricultural Ministry for selling of Rice Steaming Aluminum Equipment on concessionary rates to the beneficiaries of the development projects.

2.4. Unexplained Differences

A difference of Rs. 533,678 was observed between ledger accounts and the financial statements as at 31 December of the year under review in Accrued Expenditure was being Rs. 6,458,146 and Rs. 5,924,468 respectively.

2.5. Non-compliance with Laws, Rules, Regulations and Management Decisions

The following instances of non-compliance were observed.

Reference to Laws, Rules, Regulations etc.	Non-compliance
a) Financial Regulation of the Democratic Socialist Republic of Sri Lanka	
(i) Financial Regulation No. 570 and No. 571	Actions had not been taken according to the Financial Regulations relating to the tender deposits of Rs. 134,500 which were prevailing from 2009 to 2015 period of time.
(ii) Financial Regulation No. 756	The annual board of survey reports had not been submitted relating to 6 types of inventories amounting to Rs. 1,002,498.
b) Paragraph No. 10 of Public Finance Circular No. 02/2015 dated 10 July 2015.	Actions had not been taken to credit the cash proceeds of Rs. 6,057,930 to the Consolidated Fund as at the end of the year under review from disposing of destroyed vehicles in 2016 and 2017.

2.6. Transactions not confirmed by Sufficient Authority

It has been recorded as unsettled advances as at 31 December of the year under review without taking actions to settle the expense of Rs. 107,828 incurred without a proper approval for settling accommodation bills from the advances of Rs. 217,000 taken by 10 officers during the year under review.

3. Financial Review

3.1 Financial Results

According to the financial statements presented, the operations of the Institute for the year ended 31 December 2017 had resulted in a deficit of Rs. 8,193,072 as compared with the corresponding deficit of Rs. 9,506,446 for the preceding year, thus observed a growth of Rs. 1,313,374 in financial results in the year under review. Increase in self-earned income by Rs. 5,011,467 had been caused for the above growth mainly.

A growth had been demonstrated in contribution of the year under review and 04 preceding years after adjusting employee emoluments and depreciation on non-current assets. The contribution of the year under review and the preceding year had been Rs. 97,592,080 and Rs. 81,224,945 respectively.

4. Operating Review

4.1 Performance

4.1.1 Function and Review

The following observations are made.

- a) Though the final reports should be submitted on 31 December 2017, the final reports had not been submitted until 30 August 2018 for the Research of "Estimation of Heavy Metal Contamination in Some Popular Vegetables Grown in Different Districts of Sri Lanka" commenced in the year 2015.

- b) Though it had been planned to complete on March 2018, the final reports had not been prepared and submitted until 30 June 2018 for the Research of “Studies of Wine Production from Locally Available Groups” commenced in the year 2016.

4.2 Management Activities

The following observations are made.

- a) Ministry of Agriculture had not taken actions until 30 June 2018 relating to the recommendations and the responsible officers for the investigations although 05 enormous projects implemented by the Institute of Post-Harvest technology during the last 04 preceding years had been focused to investigations of the external organizations due to not following the procurement procedure and failure to implement transparently.
- b) Equipment worth of Rs. 16,076,078 had been purchased in the year under review and the preceding year for the money received under the capital grant of the Ministry of Agriculture distributed on free of charge by engaging with agreement to retain the ownership to the institute despite of distributing with 50 percent contribution from the beneficiaries.

4.3 Operational Activities

The following observations are made.

- a) Actions had not been taken to convert into the licensed official software which is being used by the Institute as a trail version software over 05 months although it had been purchased during the year under review for the Accounting purpose of the Institute.

- b) The reports had been retained without submitting the results to the Ministry of agriculture and other organizations recognized by testing 500 of samples incurring a cost of Rs. 1,956,120 during the year under review for the project implemented to estimate whether it include 04 heavy metal contaminations in 07 food items under the National Food Production Programme by the allocations of the Ministry of Agriculture. But, it had been reimbursed Rs. 5,350,000 from the Ministry for the expenses of the project.
- c) Although 06 cabs and 01 jeep received from the Ministry of Agriculture to the Institute for the requirement of vehicles of the Institute had been sent to the private sector garage for repairing despite the procurement procedure of the year under review and without approval of the Board of the Directors, those vehicles had not been used for the requirements of the institute and repaired until 30 May 2018.
- d) Research Releasing Committee had not been congregated at least one time for the year under review which functioned in order to provide recommendations need for reviewing researches and releasing the technology after completing researches conducted by the Institute.

4.4 Idle and Under-utilized Assets

The equipment named Gas Chromatography Mass Spectrometry System (GCMS) worth of Rs. 15.2 million had been idled over 03 years period as at 31 December 2017 without using for the research activities after establishing in the December of the year 2014 whereas an expense of Rs. 536,255 had been incurred by the Institute for servicing this equipment during the above period.

4.5 Un-economical Transactions

Late charges of Rs. 45,532 had been paid by the Fund of the Institute when settling of water and electricity bills due to not paying of bills to the due dates.

4.6 Staff Administration

Efficiency bar examinations had not been conducted according to the paragraph 15.I(II) in the Chapter II of the Establishment Code of the Democratic Socialist Republic of Sri Lanka and approved recruitment procedure for any employee category in the institute of Post-Harvest Technology from the beginning to the end of the year under review even if the efficiency bar examinations should be completed before arriving to the 4th step of the salary in deciding the salary scale of an officer.

5. Sustainable Development

5.1 Achievement of Sustainable Development Goals

Institute of Post-Harvest Technology had been informed about the way of functioning related to the duties laid down to their scope for the year under review whereas all public sector institutes should be performed according to the "Agenda" 2030 Sustainable Development year of United Nations. But, it was not observed that the specific organizations had been identified by indicating the Sustainable Development Aims and Goals and a participative access is illustrated with those organizations though rice processors, agrarian organizations and non-governmental organizations are recognized commonly as the beneficiaries.

6. Accountability and Good Governance

6.1 Procurement and Contract Process

6.1.1 Procurements

The following observations are made.

- a) Institute had been paid Rs. 63,673 exceeding the contract price since the contract had been awarded to the lowest price bidder considering only the unit price ignoring the transportation expenses in evaluating bids for designing and supplying of packaging boxes to the Mango Supply Value-chain Management Activities Development Project.
- b) Though a condition of designing and supplying of 4000 packaging boxes by a week for the Papaya Supply Value-chain Management Activities Development Project had been included in calling bids, Institute had been rejected the first qualified lowest price bidder with 4 weeks' time to supply and awarded to the next lowest price bidder. Institute had been made a loss of Rs. 801,760 due to rejecting the first qualified lowest price bidder and the next lowest price bidder has been taken 2 months' time to supply
- c) Though it should be considered in deciding the procurement limit for the lease amount of entire lease term when obtaining buildings on rent or lease according to the paragraph 2.14.1 of the Procurement Guideline, Minor Department Tender Board had been decided to obtain a building on rent for Rs. 8.5 Million for the period of 1 year and 6 months violating the procurement decision of the Board of Directors conducted to obtain a building on rent for the Colombo office it should be concentrated to the Cabinet Procurement Committee in determining the procurement limit for the lease amount of Rs. 28.5 million for 5 years' period.

6.2 Unresolved Audit Paragraphs

According to the Committee of Public Enterprises held on 19 August 2010, the Research Advisory Committee which established in the Institute in order to confirm that the researches are performed up to the relative quality and professional standards by the Institute had to congregate at least 04 times a year to evaluate the research proposals and the progress of the researches. But, the Research Advisory Committee had not been congregated at least one time for the year under review.

7. Systems and Controls

Deficiencies in systems and controls observed during the course of audit were brought to the notice of Chairman of the Institute from time to time. Special attention is needed in respect of the following areas of control.

Areas of Systems and Controls	Observations
a) Research Control	(i) Activities had not been done in terms of Research Guideline on researches performed by the Institute (ii) Instructions had not been taken from the Research Advisory Board.
b) Staff Administration	(i) The staff of the Institute had not been attended to regular training programs. (ii) Actions had not been taken to conduct Efficiency bar examinations.

c) Laboratory Control

- (i) The laboratory of the Institute had not been standardized.
- (ii) The laboratory equipment had not been utilized effectively
- (iii) A stock count had not been performed for the laboratory inventories

d) Hostel Control

Hostel income had not been recovered by using a regular internal control system

Sgd./ H.M. GAMINI WIJESINGHE
Auditor General

H. M. Gamini Wijesinghe
Auditor General