Introduction

Industrial Technology Institute, formerly known as Ceylon Institute of Scientific & Industrial Research (CISIR) is a multidisciplinary R & D institute operating under Ministry of Science, Technology & Research.

Established in 1955 under the Parliament Act no 15 of 1955 (CISIR Act) in order to support the Industrial Development in the country.

Since 1998 the Institute is functioning under the Science & Technology Development Act No 11 of 1994.

The major objectives of the institute are multidisciplinary Scientific & Industrial research and technology transfer for rapid industrial development in the country
THE VISION, MISSION AND OBJECTIVES

Vision
To be a centre of excellence in Scientific Industrial Research for national development

Mission
To conduct innovative R&D and provide internationally competitive Technical services to accelerate industrial development for the benefit of the people of Sri Lanka
The objects and functions of the ITI as specified in the Science & Technology Act No. 11 of 1994 that came into effect on 01 April 1998 are as follows.

The Technology Institute shall be demand-driven.

The object of the Technology Institute shall be to elevate the level of Technology in Sri Lanka to the level required for rapid industrialization.

Functions shall be: - to support industry by-
1. Undertaking on contract, testing, investigation and research, for improving product quality, technical processes and methods used in industry, and for discovering new processes and methods to be used in industry;

2. Providing technical services and consultancies; and engaging in activities connected with technology transfers, the adaptation of technologies and the development of new technologies

3. To conduct research with a view to accelerating industrial technology development;

4. To collect, process and disseminate useful technical information, in particular on “shelf technology” with a view to accelerating industrial development;
5. to undertake training of persons in areas related to the experience of the Technology Institute;

6. to undertake or to collaborate in the survey and monitoring of environmental pollution and to recommend remedial measures to mitigate such pollution;

7. to co-operate with government departments and institutions, universities, technical colleges and other bodies in demand driven research to promote industrial technology development
# Human Resources

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
<th>Educational Qualifications</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>PhD</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td>16</td>
<td>6</td>
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<tr>
<td><strong>Research</strong></td>
<td></td>
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</tr>
<tr>
<td>Scientists</td>
<td>62</td>
<td>13</td>
</tr>
<tr>
<td>Engineers</td>
<td>14</td>
<td>3</td>
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<tr>
<td><strong>Technical</strong></td>
<td>92</td>
<td></td>
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<tr>
<td>Administrative &amp; Clerical</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>Craftsmen</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>327</td>
<td>19</td>
</tr>
</tbody>
</table>
Govt. Grant - Recurrent: Rs 240 M (1.6M USD)
Govt. Grant - Capital: Rs 200 M (1.3M USD)
Build Improvement: Rs 13 M (0.09M USD)
Acquisition Machinery: Rs 114 M (0.8M USD)
ICT: Rs 28 M (.06M USD)
RD Activities: Rs 39 M (0.26M USD)
HRD: Rs 6 M (0.04M USD)

Income Generated in 2016: Rs 248 M (1.6M USD)
Awards/Achievements

❖ Life time APEX Award of Professional excellence in Science & Technology - Dr Iresha Kottegoda (Act. Head – Materials Technology Section)

❖ National Research Council Merit Award for Research Publication
Dr Ilmi Hewajulige – Director Food Technology Section

❖ Presidential Awards for Scientific Publications – Dr Wasana Rodrigo – Research Scientists – Biotechnology Unit

❖ Sri Lanka Association for Advancement of Science (SLAAS) Postgraduate Research Merit Award - Dr N. P. Liyanawaduge – Research Scientist – Industrial Metrology Laboratory
WORLD ASSOCIATION OF INDUSTRIAL AND TECHNOLOGICAL RESEARCH ORGANIZATION
INNOVATION AWARD - 2016

INNOVATION AWARD 2016
Dr. G. A. S. Premakumara
Finalist Business Innovation
Industrial Technology Institute
Sri Lanka
Kithul Activation and Sap Production Enhancing Reagent (KASPER).

Dr. Rohani Hashim
WAITRO Secretary - General

Eckart.Bierdumppel
WAITRO Vicepresident

Awarded during the 23rd WAITRO Biennial Congress
Medellin-Colombia, September 29th, 2016.

INNOVATION AWARD 2016
I. P. L. Jayaratna
Finalist Social Innovation
Industrial Technology Institute
Sri Lanka
Red clay based low cost domestic water filter for removal of fluoride, arsenic and cadmium in drinking water

Dr. Rohani Hashim
WAITRO Secretary - General

Eckart.Bierdumppel
WAITRO Vicepresident

Awarded during the 23rd WAITRO Biennial Congress
Medellin-Colombia, September 29th, 2016.
Our Scientific Intervention to a dying Industry & development it to an export oriented Industry

• Development of Kithul Activation and Sap Production Enhancing Reagent (KASPER).

• SL Patent No.13759
INNOVATION AWARD 2016

I. P. L. Jayaratna

Finalist Social Innovation

Industrial Technology Institute
Sri Lanka

Red clay based low cost domestic water filter for removal of fluoride, arsenic and cadmium in drinking water

Eckart Bierdempel
WAITRO Vice President

Dr. Rohani Hashim
WAITRO Secretary - General

Awarded during the 23rd WAITRO Biennial Congress
Medellin Colombia, September 29th, 2016.
Achievements

Modern Research & Development Centre – Declared open in December 2016
Two Research sections & Administrative sections moved to Modern Research & Development Complex and started operations from January 2017
Achievements

- Chemical Residue Unit was upgraded to a fully fledged Laboratory for Residual Analysis
Commercialization of Research

Technology Transfers

- Rice based instant Rotti/ Pittu mix

- *Bectrocera* spices (Fruit Fly) controlling agent (BASCA)

- Red clay based water filter

- Approx. 40 minor TT were carried out during the year
Technologies ready for Commercialization

- Glucose Syrup and High Protein Concentrates from Cassava
- Skin whitening and anti aging cream
- Technology for extension of storage life of mango
- Technology to identify pork and other meat
- Functional food products – yoghurts, bread, ready to serve beverage
- Fish soup cubes
- Tea based energy drink
Publications/Communications

- Publications – 37 scientific publications in referred journals
- Communications - over 72 International and Local Com

- Books and Book Chapters


Books and Book Chapters


<table>
<thead>
<tr>
<th>Patent No</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>16753</td>
<td>Development of Clay filter body with high fluoride binding ability for the remediation of fluoride contaminated water</td>
</tr>
<tr>
<td>16731</td>
<td>Low Cost Continuous Flow Solar Reactor for Purification of Bacterial/Organic Contaminated Water</td>
</tr>
<tr>
<td>17486</td>
<td>Method of immobilization of TiO2 on a Substrate using Polymer/Binder/Adhesive for Photocatalytic Air/Water purification</td>
</tr>
<tr>
<td>17609</td>
<td>A Calibration System for Measuring Tapes by Mechanical Comparison</td>
</tr>
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- Patents Applications lodge: 4 patents
## Capacity building

- **Postgraduate Studies**

<table>
<thead>
<tr>
<th>Programme</th>
<th>Completed</th>
<th>On-going</th>
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<tbody>
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<td>PhD</td>
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<tr>
<td>MPhil</td>
<td>03</td>
<td>04</td>
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<tr>
<td>MSc</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>PG Diploma</td>
<td>01</td>
<td>05</td>
</tr>
</tbody>
</table>
Training

2 day out bound training for all staff members

<table>
<thead>
<tr>
<th></th>
<th>No. of Programs</th>
<th>No. Trained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>Local</td>
<td>14</td>
<td>23</td>
</tr>
</tbody>
</table>

Driving the Nation through Technology
Industrial Technology Institute
New Programmes

❖ Establishment of the Human Cell Culture Facility at ITI /MRDC – In progress

❖ Joint China – Sri Lanka Biotechnology Laboratory – In Progress

❖ Joint China – South Asia Technology Transfer Centre – Agreement signed

❖ Pharmaceutical Testing Laboratory – 150 M allocated – In progress

❖ Petrochemical Testing Laboratory – In progress

❖ School of Science & Technology – In progress
New Programmes

- Method to determine the feasibility of a nano material to anchor the developed dengue virus antibodies
- Room Acoustic Modeling
- Evaluation of bioactive properties and determination of *in vitro* cholesterol assimilation effect of potential probiotics isolated from Sri Lankan Finger millet
- Development of an anti-glycation and glycation reversing assay kit addressing all stages of glycation process
- Development of shelf stable high energy instant food products from locally available raw materials using gamma irradiation
- Reductions of vehicle exhaust emission by nano particle supported adsorption media
- Investigation of mode of contamination and the extent of contamination by pesticide residues in selected food items
International Collaborations

Collaborations with other COMSATS Centers of Excellence

Establishment of a Climate Change Research Centre at ITI in collaboration with ICCES, China

As part of the MoU between ITI and International Center for Climate and Environment Sciences (ICCES)

- One of the ITI staff members is doing his PhD at ICCES, China.
- State Minister for Science, Technology & Research of Sri Lanka Hon. Laxman Senevirathne visited ICCES on a facts finding mission in April 2017
International Collaborations

Collaborations with other COMSATS Centers of Excellence

International Centre for Chemical & Biological Sciences (ICCBS) – Karachi, Pakistan

Three Research Scientists of ITI underwent training at HEJ Research Institute of Chemistry & Dr.Pajwani Centre for Molecular Medicine & Drug Research
International Collaborations

Started a COMSATS Desk at Information Services Centre of ITI

Driving the Nation through Technology
Industrial Technology Institute
International Collaborations

Enhance preservation of fruits in South Asia
The second phase of the CIFSRF-IDRC, Canada aided project, aiming commercialization of the products and services developed by the phase one, “Hexanal Smart Delivery System”, “Enhanced Freshness Formula” and technology on banana fibre paper was initiated during last year and Technology Transfer of a wax formulation to private sector Agro-Industry is in progress.

Novel cereal and fruit based probiotics
The Indo-Sri Lanka joint research programme with ICRISAT, India on Ensuring human health, food and nutrition a technology transfer is in progress on banana flour as a replacement to wheat flour.

Investigation of Sri Lankan Food
A project on “Investigation of biologically active natural products from Sri Lanka fruits started with the Korean Institute of Food Technology and an MOU was signed between Sichuan Institute of Atomic Energy of China to strengthen the technical cooperation in the field of food irradiation
Future Plans

Participation in COMSATS programmes

S & T cooperation offers to other network members and COMSATS member countries

Joint research work

Herbal Technology: Value addition to Natural Products
Food Technology: Health food, Nutraceuticals, Natural Food additives, Post harvest technologies
Material Technology: Value addition to minerals; Natural Fibers

Training facilities: Metrology; ISO 17025; Herbal cosmetics

Technology transfers: A range of Herbal, Food & Material based technologies for MSMEs

A big thank for your patience........
KASPER Technology for Kithul tapping
Anti-diabetic biscuit from *Salacia reticulata*
Functional water from spices

% Radical scavenging activity

Vit E. 15.8 µg
Vit E. 31.6 µg
Vit E. 47.4 µg
Vit E. 63.2 µg
Vit E. 79 µg
Cin 200 µl
Clove 200 µl
Herbal cosmetics, cosmaceuticals, air fresheners
Bacillus thuringiensis israelensis

- Indigenous strain of bacterium, *Bacillus thuringiensis israelensis*.
- Proven technology and a viable option for mosquito control in Sri Lanka especially dengue control, filarisis, malaria, JE.
- Green technology – environmentally benign, a viable alternative for synthetics.
- Successfully commercialized to use in Sri Lanka.
- Novel venture in biotechnology-based industries in Sri Lanka
- Value addition to local R&D out puts by local Scientists
Electro Technology Unit

Audio signal based street lamp controller

Automated weather station

Timer based street lamp controller

Industrial Technology Institute