



PGIS News

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The Quarterly Update of the work and progress of the Postgraduate Institute of Science (PGIS), University of Peradeniya, SRI LANKA

PGIS News

Editorial Board:

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This is the inaugural issue of PGIS News published by the Postgraduate Institute of Science. The first issue reports the events of PGIS since its establishment in 1996. In the forthcoming issues, we intend to publish articles and short notes of academic nature. We shall be pleased to receive your comments, suggestions and contributions with a view to improving its quality. Correspondence and requests for copies of PGIS News should be addressed to Dr. N C Bandara - Editor:

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↑ Important PGIS Events (1996 - To date)

January 18, 1996 - Establishment of the PGIS.

March 01, 1996 - Appointment of Prof. R P Gunawardane, Dean, Faculty of Science, University of Peradeniya as Acting Director.

April 20, 1996 - Inaugural Meeting of the Board of Management.

July 01, 1997 - Appointment of Prof. K. Dahanayake as Director.

December 30, 1997 - Award of Degrees to the first batch of M.Sc. students.

June 18, 1998 - Laying of the foundation stone for the new building.

October 20, 1999 - Completion and occupation of the new building.



A picturesque view of the new PGIS building overlooking the Peradeniya University Cricket Grounds

↑ PGIS - Aims and Objectives

A Message from Prof. K Dahanayake, Director, PGIS

The Postgraduate Institute of Science (PGIS) was established by an Order gazetted by the Honourable Minister of Education and Higher Education under Section 24A of the Universities Act No. 16 of 1978 with effect from 18th January 1996. The PGIS is a national institution attached to the University of Peradeniya for the purpose of providing, promoting and developing higher education in science. The PGIS is now located in its own new 3-storey building in the Peradeniya campus in the picturesque surroundings overlooking the university cricket grounds.

The principal activities of the institute are essentially to give directions and promote postgraduate teaching and research in the scientific disciplines under its purview through the respective Boards of Study. The programmes offered by the PGIS consist of M.Sc. by course work and M.Phil. and Ph.D. by research. In addition to the taught M.Sc. courses initiated at the PGIS, the postgraduate research programmes (M.Phil. and Ph.D.) which were traditionally conducted by the Peradeniya Science Faculty were transferred to the PGIS. The PGIS proposes to expand its postgraduate activities and initiate sandwich and collaborative programmes with local and overseas institutions and the industry.

Several M.Sc. programmes, postgraduate diploma/certificate programmes, in-service training programmes and short courses have already been made available. Most of the M.Sc. programmes have now been restructured to suit the needs of the country and are now conducted under the course unit system. The institute also offers consultancy services to the local industry, public and private sector institutions. It is also geared to organising in-service training programmes depending on the need and demand. The programmes are available under the following ten boards of study of PGIS: Biochemistry and Molecular Biology, Chemical Sciences, Earth Sciences, Environmental Science, Mathematics, Physics, Plant Sciences, Science Education, Statistics and Computer Science and Zoological Sciences.

The resource personnel of the institute consists of experts drawn from universities and private/public sector

organisations of Sri Lanka. In addition, the PGIS can obtain the services of foreign experts when such expertise is not available in Sri Lanka. Recently, on our initiative a forum of Sri Lankan expatriate scientists working in U.S.A. has been launched for the purpose of enhancing the status of science and technology in Sri Lanka. They have also expressed their willingness to conduct lectures and practical sessions and act as supervisors of postgraduate theses. As a result of this initiative, action has been already taken to enlist the support of expatriate scientists in the conduct of some of our M.Sc. programs (e.g. Clinical Biochemistry and Computer Science).

Since the establishment of the PGIS in 1996, 69 M.Sc., 10 M.Phil. and 9 Ph.D. degrees have been awarded through the University of Peradeniya. It is heartening to note that large numbers of graduates who are locally employed having obtained their first degrees from various universities in Sri Lanka and abroad turn to the PGIS for their postgraduate education in different disciplines of science. Among the many programmes, the currently most sought-after are the M.Sc. programmes in Science Education and Computer Science. With its projects of international collaboration, the impending acquisition of computers and the internet facilities, the PGIS strives to provide its students with a postgraduate education on par with the best in the world. Currently, proposals are being formulated to obtain foreign assistance to install state-of-the-art instrumentation in the PGIS laboratories. With the support we have been receiving for the implementation of our programmes from eminent scholars and scientists from Sri Lanka and abroad, the day is not very far when we can be proud of being the Sri Lankan Centre of Excellence for postgraduate teaching and research in the sciences under our purview.

Board of Management of the PGIS (as of 30th March 2000)

Director, Postgraduate Institute of Science:
Prof. K Dahanayake

Secretary to the Ministry of Education & Higher Education:
Prof. R P Gunawardane

Secretary to the Ministry of Finance (nominee):
Dr. (Mrs.) P Alailima

Secretary to the Ministry of Science & Technology:
Mr. N Pathmanathan

Director, Institute of Fundamental Studies (IFS):
Prof. K Tennekoon

Director, Industrial Technology Institute (ITI):
Dr. P.M Jayatissa

Director, National Science Foundation (NSF):
Mr. M Watson

Director, Geological Survey and Mines Bureau (GSMB):
Dr. N P Wijayananda

Director-General, Central Environmental Authority (CEA):
Dr. L Jayasinghe

Director-General, National Aquatic Resources Research and Development Agency (NARA):
Dr. D S Jayakody

Director-General, National Institute of Education (NIE):

Prof. C L V Jayatillake

Director-General of Agriculture:

Dr. S S B D G Jayawardena

President, Federation of Chamber of Commerce and Industry of Sri Lanka (nominee):

Ms. S Jayawardena

Deans of Faculties of Science of the Universities:

Prof. (Ms.) K Abeynayake (Colombo)

Dr. T Jayasingam (Eastern)

Prof. R Kumaravadivel (Jaffna)

Prof. M J S Wijeyaratne (Kelaniya)

Prof. (Mrs) U Coomaraswamy (Open)

Prof. V Kumar - Actg. Dean (Peradeniya)

Dr. (Mrs.) N J de S Amarasinghe (Ruhuna)

Prof. W S Fernando (Sri J?pura)

Members elected by Boards of Study:

Prof. P A J Perera (Biochem. & Mol. Biology)

Prof. (Mrs) N S Kumar (Chemical Sciences)

Dr. A Senaratne (Earth Sciences)

Prof. O A Ileperuma (Environmental Science)

Dr. U N B Dissanayake (Mathematics)

Prof. M A Careem (Physics)

Prof. I A U N Gunatilleke (Plant Sciences)

Prof. M A K L Dissanayake (Sc. Education)

Prof. R O Thattil (Stat. & Computer Science)

Prof. P K de Silva (Zoological Sciences)

Members appointed by the University Grants Commission (UGC):

Dr. A S Abeyratne

Dr. V T L Bogahawatta

Dr. U P de S Waidyanatha

Mr. G Wijesooriya

Ms. K H P S Kodituwakku

We congratulate Prof. R P Gunawardane who now serves the PGIS Board of Management in his new capacity as the Secretary, Ministry of Education & Higher Education. We hope that Prof. Gunawardane who pioneered the establishment of the PGIS will continue to support us in our endeavors to uplift the status of postgraduate science education in Sri Lanka.

Ph.D./M.Phil. DEGREE PROGRAMMES SINCE 1996

There are 119 candidates currently registered for Ph.D. and M.Phil. degrees by research under different Boards of Study of the PGIS. These include the programmes that were transferred to the PGIS from the Faculty of Science, University of Peradeniya in 1996. 9 Ph.D. and 10 M.Phil. degrees have been awarded since the inception of the PGIS in March 1996.

Ph.D. Degrees Awarded

Name of Awardee	Title of Thesis
1. Mr. K A N Premaratne Bandara	Insecticidal compounds from some Sri Lankan plants (1997)
2. Mr. C P Udawatte	Physicochemical investigations on synthetic spinels (MgAl ₂ O ₄) and Sri Lankan Geuda (1997)
3. Ms. C L Abayasekara	Freckle disease caused by <i>Phyllosticta musarum</i> in Banana: Biology, control and host defense responses (1998)
4. Ms. J Dela	The ecology and social biology of a selected population of the western purple-faced leaf monkey (<i>Trachypithecus vetulusnestor</i> = <i>Presbytis senex nestor</i>) (1998)
5. Mr. A Balasuriya	Study of wood rots in tea (<i>Camellia sinensis</i>) with special reference to that caused by <i>Nemania diffusa</i> (syn. <i>Hypoxyton vestitum</i>) (1998)
6. Mr. T M T N Tennakoon	LiFeO ₂ and LiCoO ₂ based ceramics as alternative cathode materials for molten carbonate fuel cells (1998)
7. Mr. D R K Lokuliyana	Studies on the utilization of some by-products in building materials, ceramic and catalyst industry (1999)
8. Ms. K Alagesan	(nee Vallipuram) Pesticidal compounds from plants and effect of host plant odours on aphids (1999)
9. Mr. R R M C N B Bambaradeniya	Ecology and biodiversity in an irrigated rice field ecosystem (2000)

M.Phil. Degrees Awarded

Name of Awardee	Title of Thesis
1. Ms. R S Rajakaruna	Effects of anti- α -galactosyl antibodies on the growth of the malaria parasite, <i>Plasmodium falciparum</i> (1997)
2. Mr. L M M P Liyanagedera	Quantification of proton and organic-chlorine interactions in pyrite-water interface; A mechanistic approach (1997)
3. Mr. L P P Lankeshwara	Electrochemical studies of electronically conducting polymers and their possible applications (1998)
4. Mr. N K Bandaranayake	Biochemical studies in shot-hole borer infestation of tea (1998)
5. Mr. L M W K Gunaratne	Electrical conductivity and optical absorption studies of polyaniline conducting polymer (1998)
6. Mr. A G Sunil	Feasibility studies on underplanting multiple use species in buffer zone pine plantations of the Sinharaja MAB reserve (1998)
7. Mr. J M G S B Jayasinghe	Bioactivity of <i>Pongamia</i> sp. and effect of saponins on the fungal symbiote of shot-hole borer beetle (1998)
8. Ms. J M K Karagaswewa	Potential use of vesicular arbuscular mycorrhizal fungi to improve the seedling growth of lesser known tree legumes with special reference to <i>Pericopsis mooniana</i> (1998)
9. Mr. PWB Jayasekara	A taxonomic revision of Hymenophyllaceae of Sri Lanka (1998)
10. Mr. Sunil Liyanage	Floristic structure and aspects of regeneration of tree species in the Kahalla Forest Reserve (1999)

M.Sc. DEGREE PROGRAMME

↑ *First Series of M.Sc. Programmes*

The M.Sc. programmes conducted by the PGIS generally consist of course work of about 12 -15 months duration and a research project of about 3 - 6 months duration. The PGIS initiated its first series of 12 M.Sc. programmes during the period 1996 - 1998. A total of about 170 students were registered for these M.Sc. programmes. 69 M.Sc. degrees and 2 Diplomas have been awarded so far. The M.Sc. programmes in Analytical Chemistry, Industrial Chemistry and Industrial Mathematics are still being continued. Several students are writing up their project reports under these M.Sc. programmes.

M.Sc. Programmes initiated during 1996 - 1998

M.Sc. Programme	Coordinator/s	Date of Commencement
1996		
Postharvest Technology of Fruits and Vegetables(transferred from the Faculty of Science, University of Peradeniya)	Prof. N K B Adikaram Mrs. A Karunaratne	Jan 9
Medical Physics	Dr. R L Wijayawardena	Oct 28
Gemmology	Dr. S W Nawaratne Dr. V Mathavan	Nov 9
1997		
Environmental Science	Prof. O A Ileperuma Prof. P K de Silva	Jan 1
Wildlife Ecology & Management	Prof. I A U N Gunatilleke Prof. C Santiapillai	Feb 24
Analytical Chemistry	Prof. H M N Bandara Dr. N Priyantha	Mar 15
Industrial Chemistry	Prof. N Fernando Dr. N Ariyaratne	Mar 15
Physics of Materials	Prof. B S B Karunaratne	Mar 27
Parasitology	Dr. P Amerasinghe	Nov 3
1998		
Industrial Mathematics	Dr. A A S Perera	Jan 3
Science Education	Dr. S Karunaratne	June 12
Applied Statistics	Prof. R O Thattil	Aug 1

Some Pioneering M.Sc. Programmes

Postharvest Technology of Fruits and Vegetables

The M.Sc. programme in Postharvest Technology of Fruits and Vegetables was introduced in January 1996 in the Department of Botany with a view to training specialists with latest scientific and technological knowledge and

background necessary for successful postharvest handling and management of fruits and vegetables. This is the first programme of this nature ever to be conducted by a Sri Lankan higher education institution. The PGIS undertook the administration of this programme from the Faculty of Science, University of Peradeniya in July 1996.

The technology needed for successful postharvest handling of perishable produce spans across many scientific disciplines. The programme which was designed within a multidisciplinary framework was intended to assist the local fruit and vegetable industry. Many individuals specialized in postharvest sciences and related fields from the universities and scientific/industrial organizations (e.g. Faculties of Science, Agriculture & Engineering of the University of Peradeniya, Food Research Centre of the Department of Agriculture, CISIR, National Packaging Centre, National Plant Quarantine Centre) in the country shared the burden of the conduct of the programme. Its success was mainly due to this collective effort. The initial phase of the programme was well supported by the experienced and well known postharvest specialist, Professor Terry Swinburne from Wye College, University of London whose visit was sponsored by the British Council and the University of Peradeniya. A portion of the Asian Development Bank loan granted to Science & Technology development of Sri Lankan institutions has been devoted to strengthen the M.Sc. programme in Postharvest Technology of Fruits and Vegetables.

The first batch consisted of 18 students, few of them were fresh graduates and others had some work experience gained following graduation. Fifteen of them have successfully completed the programme and most of them are now gainfully employed.

Medical Physics

The M.Sc. programme in Medical Physics was the first event of its kind to be inaugurated directly under the PGIS. This was the only such programme offered in Sri Lanka aimed at providing postgraduate training to Physicists to serve in hospitals. The programme was conducted by the Board of Study in Physics in collaboration with the Medical Faculty of University of Peradeniya, Cancer Institute of Maharagama, Atomic Energy Authority and General Hospitals of Peradeniya, Kandy and Colombo. Medical Physicists play an important role in the diagnosis and treatment of diseases, especially cancer. Only a handful of qualified Medical Physicists are available in Sri Lanka to serve in the entire hospital sector. Since the introduction of this programme, two candidates have obtained their M.Sc. degrees and five others would complete the programme shortly. Plans are underway to recommence this programme with improved and up-to-date programme contents.

Gemmology

The M.Sc. programme in Gemmology is considered to be the only one of its kind in the world. Sri Lanka being world famous for its variety of gemstones is very appropriate that the PGIS launched this M.Sc. programme. The programme was initiated by the Board of Study in Earth Sciences to provide an in-depth knowledge on gems and gem-industry to those who are interested in advanced techniques in gem-trade, exploration, mining and gemmological research. The programme is offered for the university graduates with science background or any other qualifications acceptable to the PGIS. The programme is conducted at the Department of Geology, University of Peradeniya which has teaching/research facilities and trained staff in gemmology and other allied fields as crystallography and minerology. This programme is conducted in collaboration with National Gem and Jewellery Authority of Sri Lanka and other local and foreign institutions that have long experience in gem-industry and gemmological research. The late Prof. Dr. Jurgen Pense from the Gemmological Institute of University Mainz, Germany actively participated in organizing and conducting lectures and practicals of this programme.

Out of the ten candidates enrolled in the programme, four candidates completed the M.Sc. programme and two candidates completed the Diploma. All the M.Sc. degree candidates carried out advanced research in gemmology.

Environmental Science

The Board of Study in Environmental Science started the M.Sc. programme in Environmental Science in January

1997. The number of students enrolled was 18. The programme comprising of four theory modules, two practical modules, seminar and a research project was a multidisciplinary exercise where lecturers from several faculties and outside institutions delivered lectures and conducted practicals. It covered diverse aspects of the environment ranging from the physical environment to the biological environment and the human influences on the environment. Environmental monitoring and impact assessment were also covered during the programme. Practical on air quality monitoring, and monitoring of toxic pesticides in water were carried out at the National Building Research Organization (NBRO) and Ceylon Institute of Scientific and Industrial Research (CISIR). Students were assigned to research projects at University of Peradeniya and other outside institutions. The students carried out a seminar on literature survey for their research projects and their results were again discussed at oral presentations. Thirteen students have successfully completed the M.Sc. programme.



Students of the M.Sc. programme in Environmental Science during a field trip to a landslide site at Kalugaloya, Uda Dumbara.



The first batch of students who followed the M.Sc. programme in Science Education. Some members of the teaching staff are standing in the first row.

Science Education

This is the first ever postgraduate programme in Science Education in Sri Lanka initiated by the PGIS in 1998. The M.Sc. programme in Science Education conducted by the Board of Study in Science Education was meant for science graduate teachers of secondary schools and science educators. The programme was inaugurated on the 12th June, 1998. Twenty-eight science graduate teachers were selected after an island-wide competition to follow this programme. The programme is designed with a core component in Science Education and optional components in Biology Education, Chemistry Education and Physics Education and a research project. A teaching panel of more than 75 eminent scientists/educationists from Sri Lanka and abroad conducted lectures for this programme. The students also had the opportunity of participating in the International Workshop on Science Education organized by the PGIS. Twenty candidates have already successfully completed the degree in March 2000 and the remaining candidates are expected to complete the degree shortly.

↑ *Second Series of M.Sc. Programmes*

The second series of M.Sc. programmes with their syllabi revised and restructured under the Course Unit System commenced in 1999/2000. Out of these, 11 M.Sc. programmes have already commenced the activities during the last few months. A total of 157 students are currently registered for these M.Sc. degree programmes.

M.Sc. Programmes 1999/2000

M.Sc. Programme	Programme Coordinators	Date of Commencement	No. of Students Registered
1999			
Environmental Science	Prof. K H G M de Silva	Sept 18	11
Analytical Chemistry	Dr. N Priyantha	Oct 2	12
Industrial Chemistry	Prof. N Fernando Dr. D Jayawickrama	Oct 2	7
Postharvest Technology of Fruits and Vegetables (with ADB assistance)	Prof. N K B Adikaram Mrs. C Breckenridge	Oct 6	15
Applied Statistics	Prof. R O Thattil	Oct 9	15
Gemmology	Dr. S W Nawaratne Mr. L R K Perera	Nov 13	7
Physics of Materials	Prof. B S B Karunaratne	Nov 20	4
Chemical Ecology and Pesticide Chemistry (with Sida/SAREC assistance)	Prof. V Kumar Prof. S H P P Karunaratne	Dec 11	8
2000			
Science Education	Dr. S Karunaratne	Jan 4	36
Clinical Biochemistry	Prof. P A J Perera Dr. S B P Athauda Dr. P H P Fernando	Jan 24	6
Biodiversity Conservation Management	Prof. I A U N Gunatillake	Feb 18	9
Computer Science	Dr. A Senanayake	(To commence on May 6)	27

↑ M.Sc. Degrees Awarded during 1997 - 2000

<i>Name of Awardee</i>	<i>Title of Project Report</i>
<i>Postharvest Technology of Fruits & Vegetables</i>	
1. Ms. W W D M G D Dasanayake	Modified atmosphere storage of type ?Kolikuttu? bananas (1997)
2. Ms. S M S De Silva	Some factors underlying the resistance of banana variety ?Kahambala? to anthracnose disease (1997)
3. Ms. Z A N Fahima	The effect of two antagonistic bacterial isolates on three major postharvest pathogens (1997)
4. Ms. M K Gunaratne	Modified atmosphere packaging for local avocados (Persea Americana Mill.) (1997)
5. Mr. U Jayasundara	Investigation of diurnal variation and impact of stress on titratable acidity of pineapple var. mauritius as causative effect on internal browning (1997)
6. Ms. U G Y M Manoja	A study of physico-chemical changes of banana var. ?Kahambala? during fruit development and ripening (1997)
7. Ms. K A C Nalini	Cynometra cauliflora L. (Ceasalpinioideae): Fruit composition and storage (1997)
8. Ms. R A D D N Ranasinghe	Factors influencing postharvest longevity of okra (Hibiscus esculantus) (1997)
9. Ms. M I S Safeena	Phytoalexin in eggplant (Solanum melongena) infected with Phomopsis vexan and Susarium solani (1997)
10. Mr. A M W K Seneviratne	Cross inoculation studies of four Colletotrichum isolates from mango, avocado, banana and rubber (1997)

11. Ms. A W G S Yalingasinghe Effect of hot water, papaya latex and bacterial treatments to extend shelf life of papaya (*Carica papaya* L.) (1997)
12. Mr. S B S Dissanayake Pre- and post-harvest treatments to improve the quality and shelf life of guava (*Psidium guajava*) (1997)
13. Mr. K Nadarajah Utilization of local papaya varieties for the production of fruit leather (1997)
14. Ms. A C U Senarathne The effect of two *Bacillus* species on three species of *Colletotrichum* (1997)
15. Ms. D N Hettiarachchi Identification of major postharvest diseases of carrots (*Daucus carota* L.) and effect of modified atmosphere on storage (1998)

Environmental Science

1. Ms. S K Gunatilake Appraisal of nitrate contamination of groundwater by intensive use of fertilizer around Kandy area in Maha season (1998)
2. Ms. Jayawickramarachchi Abundance and population structure of the paddy plug in non-rice habitats of a rice field (1998)
3. Ms. S N Ponnampalam Leachate characteristics during the early stages of decomposition of Municipal Solid Waste (1998)
4. Ms. P M Thalagahagedera The life cycle of automobile oil in Sri Lanka (1998)
5. Ms. M W S K Yatigammana Biological aspects of the development of some selected soil profiles in the central highlands of Sri Lanka (1998)
6. Ms. M R S Dias Comparison of Bod methodology for waste water samples (1998)
7. Ms. I J K Palugaswewa Study of insecticidal properties of *Euphorbia antiquorum* (1998)
8. Ms. B V A Damayanthi Determination of allethrin in mosquito coils - comparison of test methods specified in Sri Lankan and Indian standards (1998)
9. Ms. B M N K Dorabawila Electrochemical analysis of pesticides in water (1998)
10. Ms. S H M U Iman Water quality of Maha Oya (1998)
11. Ms. C P Palihapitiya Removal of excess iron in ground water (1998)
12. Mr. K M M N Dassanayake Strategies for better planning approach towards solid waste management in the CMA and a methodology for comparison between regional solution and localized solution (1999)
13. Mr. S M A Senanayake Study of important physico-chemical parameters, marginal vegetation and pollution aspects of Pinga Oya - A stream in the Mahaweli mid-catchment area (2000)

Gemmology

1. Mr. M D P L Francis A gemmological investigation of corundum and spinel in the Embilipitiya and Ratnapura areas of Sri Lanka (1999)
2. Mr. B P Vithanage Heat treatment of Geuda stones and enhancement of their blue colour (1999)
3. Mr. K A B Karunaratne Heat treatment of Yellow Geuda (1999)
4. Mr. H H D A L Siriwardena Quality enhancement of Sri Lankan zircon (1999)

Wildlife Ecology & Management

1. Ms. B M K M K Basnayake Biodiversity of Gannoruwa forest and its sustainable management (1998)
2. Ms. S J Esufali Avifauna in the Illukkumbura region of the Knuckles Range (1998)
3. Ms. J K D S N Jayaneththi Impact of wild elephants on agricultural communities in Victoria-Randenigala-Rantembe sanctuary (1998)

4. Ms. C S Kariyawasam Comparison of streamside vegetation in different land use types of Maha Oya in Hantana Campus land (1998)

Medical Physics

1. Mr. Y A A Kumarayapa Quality assurance measurements on radiological imaging equipment (1998)
2. Mr. S Sivananthan Performance characteristics of Well counter in radioassay (1999)

Physics of Materials

1. Mr. K Ganesan Preparation and characterisation of bismuth-based high temperature superconductors (1999)
2. Mr. P Ravirajan An investigation of electrical properties of barium titanate based ceramics (1999)
3. Mr. D D Wijesinghe Development of a computer model representing bulk diffusion semiconductors (1999)
4. Mr. U L Zainudeen Studies on electrodeposited ZnSe thin films (1999)

Parasitology

1. Mr. S R Jayanetti Interspecific competition of container breeding mosquitoes in Kandy (1999)
2. Ms. S H Boyagoda Morphology, protein characterization and seasonal abundance of Acephaline gregarines (Apicomplexa: Aseptatina) of three earthworm species (1999)
3. Ms. M D B Perera The presentation of clinical symptoms in malaria patients residing in a malaria endemic area of Sri Lanka (1999)
4. Mr. A Naguleswaran A preliminary study on the salivary glands of *Haematobia exigua* de Meijere 1903 (Diptera: Muscidae) (2000)

Science Education

1. Ms. ARGAM Abeykoon Menike Introducing atomic structure to advanced level students through their active participation in the learning process (2000)
2. Ms. NC Abeyratna Preparation of a supplementary book on petroleum industry for the G.C.E. (Advanced Level) students (2000)
3. Mr. S N A Aroos Removal of salinity from saline water using freely available natural substances (2000)
4. Ms. A A K Bokalamulla A comparative study of amylase activity of germinating seeds of mung bean (*Vigna radiate* L.), cowpea (*Vigna unguiculata* L.) and soya bean (*Glycine max* L.) (2000)
5. Mr. W D Chandrasena Determination of the relative positions of elements in the electrochemical series (2000)
6. Ms. K H N Damayanthi Self learning study pack on 'Insect Pests' for A/L biology students(2000)
7. Ms. R M S K Gunasinghe Preparation of a computer based self-study guide for G.C.E Advanced Level physics students (2000)
8. Ms. K B J Karunaratne Demonstration experiments with the oscilloscope (2000)
9. Ms. S. Kumarakulasingam New approaches in teaching chemical kinetics (2000)
10. Ms. R P K Mahagamage A study pack to introduce post harvest technology of fruits and vegetables to Advanced Level biology students (2000)
11. Mr. K S K Peiris A study to prepare a workbook for the selected sub units of basic concepts in the Advanced Level chemistry syllabus (2000)
12. Ms. T K Peramune The impact of simple biological projects in learning biology (2000)
13. Ms. P Rajakaruna A critical review of G.C.E (A/L) physics question paper administered in the Kandy education circuit at Grade 13 level by the Provincial Education Department (2000)
14. Ms. S A K R Rajapakse An evaluation procedure for chemical kinetics (2000)
15. Ms. N B A Rasheed Development of new approaches in teaching thermochemistry (2000)
16. Ms. K M R R N B

Seetha Kumari	Mathematical skills needed for G.C.E (Advanced Level) physics (2000)
17. Ms. P S Skantharajah	Differences in knowledge representation about Newton's laws of motion between two groups of physics students (2000)
18. Ms. P R K A Vitharana	Ecology and diversity of woody vegetation in Orupella rain forest, Kegalle district, Sri Lanka - A preliminary study (2000)
19. Mr. W M N Weerasekara	Assessing the diversity of woody plant species in Gannoruwa forest and preparation of simple teaching aids for teaching ecological diversity (2000)
20. Ms. M W S K Wijethilaka	Computer assisted programmes for teaching selected topics in A-Level chemistry (2000)
Applied Statistics	
1. Mr. C J Rajanathan	Application of the principal component regression model to investigate all share price index (1999)
2. Ms. C P Karunanayake	Trends and forecasting of electricity consumption in Sri Lanka(2000)
3. Mr. S Amirthalingam	Investigations of the factors affecting performance in mathematics in G.C.E (O/L) in the Ambagamuva Educational Zone (Nuwara Eliya District - Tamil Medium) (2000)

↑WORKSHOPS AND CONFERENCES

A summarized list of all events appears on pages 18 and 19. Details of some selected events are given below.



Dr. J A J Perera, Chief Programme Officer, S & T Division, Commonwealth Science Council, London addressing the international workshop on 'Acid Rain Monitoring and Atmospheric Modelling' - 20th April 1998

Acid Rain Monitoring and Atmospheric Modelling

An International Workshop on 'Acid Rain Monitoring and Atmospheric Modelling' was held at the Hotel Tourmaline, Kandy from April 20 to 24, 1998. The main sponsor of this event was the Commonwealth Science Council, U.K. Financial assistance for this workshop was received from Postgraduate Institute of Science (PGIS) and National Science Foundation (NSF). This workshop was inaugurated by Hon. Batty Weerakoon, Minister of Science and Technology and the keynote speech was given by Dr. Peter Manins, Head of the Industrial Research Pollution programme, CSIRO, Aspendale, Australia.

The workshop was attended by 14 foreign resource persons and 40 local participants. Country reports were presented by the scientists from different countries and there was a lively discussion on the methodologies used and the research findings reported. At the concluding session, some useful recommendations were made to be submitted to the Government of Sri Lanka and the idea of close co-operation between countries in the region was emphasised. This workshop provided an ideal opportunity for scientists from Sri Lanka to exchange ideas and to forge links with some leading foreign laboratories. It was also decided that there should be a local network of acid rain monitoring centres in Sri Lanka where universities in different regions of Sri Lanka could participate. The proceedings with full papers were published as a 150 page volume.

Coordinator: Prof. O A Ileperuma

Science Education



Honourable Batty Weerakoon, Minister of Science & Technology being ceremonially conducted to the venue of the International workshop on ? Science Education? - 12th January 1999

An International Workshop on Science Education was held for the first time in Sri Lanka from January 12 to 16, 1999. The workshop was organised by the Board of Study in Science Education and Science Education Unit, University of Peradeniya. The objective of the workshop was to expose

our science teachers to latest developments in the field of Science Education. Among the resource persons were 12 eminent foreign science educators drawn from Australia, Canada, Germany, Holland, India, Japan, U.K. and U.S.A. and 25 local science educators. There were 140 local participants and 04 foreign participants from India and Pakistan. Most of the participants were graduate science teachers (teaching Biology, Chemistry, Physics, or Mathematics at G.C.E. Advanced Level classes) selected on a competitive basis. In addition, there were also a few science educators and administrators among participants. The workshop was sponsored by ICTP/Italy, NSF/Sri Lanka, PGIS, University of Peradeniya and AusAid/Australia.

The sessions on Science Education were common to all participants. Parallel sessions were held on Biology Education, Chemistry Education, Mathematics Education and Physics Education. In addition to lectures, there were lecture demonstrations, laboratory demonstrations, audio-visual sessions, discussions and field visits. According to the feedback received from participants through a questionnaire, they have benefited a lot from participating in this workshop.

Coordinator: Prof. M A K L Dissanayake

Statistics & Computer Science

The Board of Study in Statistics & Computer Science conducted five short courses since the Board was established in 1996. The short courses on ?Sampling Techniques?, ?Medical Statistics?, ?Introduction to Microcomputers and Applications?, ?Spread Sheets and Database Management? and ?Achieving and Maintaining Quality and Productivity? were attended by academics of universities, officers of government and private firms and private individuals. The courses in computer applications were attended mostly by officers of private firms, while the courses in statistics were demanded mostly from academics. Each participant was asked to complete an evaluation form. All the courses received excellent ratings from the participants. Most of them requested follow-up courses in both areas. The Board intends to formulate such follow-up courses according to the demands in the near future.

Coordinators: Prof. R O Thattil, Prof. W S Perriman

Basic Electronics

A four-day workshop in Basic Electronics was held from January 4 to 7, 2000 in the Department of Physics, University of Peradeniya. The workshop was organised by the Board of Study in Physics. This was intended primarily for those who have passed A/L Physics or those having some experience in the field of electronics. The programme consisted of about 12 hours of lectures covering AC and DC electricity, power supplies, linear and switching regulators, amplifiers, operational amplifiers, digital electronics, transducers and protection circuits and about 20 hours of practical sessions.

There were 26 participants including technical staff from universities and other public and private sector institutions. Most of the participants expressed the view that it would be beneficial if a more advanced course were organised in the future for those who participated in this programme.

Coordinator: Prof. H M N Bandara

Basic Plant Taxonomy

A Training Programme on Methods in Basic Plant Taxonomy was conducted by the Board of Study in Plant Sciences in collaboration with the Departments of Botany & Chemistry (University of Peradeniya), the Royal Botanic Gardens and the Plant Genetic Resources Centre (Department of Agriculture) from January 13 to 15, 2000. This workshop on plant specimen collection, processing, identification and storage was offered for the ethnobotanical survey team of the conservation and sustainable use of medicinal plants project of the Ministry of Indigenous Medicine.

The programme included lectures, laboratory work and field visits to enhance the skills in herbarium preparation, identification and chemical analysis with special focus on medicinal plants for a group of 11 members of the medicinal plant survey team. The course was conducted by bringing together experts from different institutions in order to contribute to national needs in conservation and sustainable use of medicinal plant diversity of Sri Lanka.

Coordinator: Prof. I A U N Gunatilleke

Scientific Writing

The PGIS organised a Workshop on Scientific Writing from March 31 - April 01, 2000. PGIS students who are writing their M.Phil./Ph.D. theses participated in the workshop. Eminent scientists from the Faculties of Science & Agriculture, University of Peradeniya and the Institute of Fundamental Studies (IFS), Kandy served as resource persons.

The workshop consisted of lectures and discussions on various aspects of M.Phil./Ph.D. theses writing. Based on the experience gained and feedback from the participants, it is proposed to organise a national workshop on scientific writing as recommended by the Board of Management.

Coordinator: Dr. N C Bandara

Algal Bloom in Kandy Lake

In December 1999, a round table discussion on the pollution of the Kandy lake was organized by the Board of Study in Environmental Science with the participation of Dr. Ross Sadler from the National Research centre for Toxicology, Queensland, Australia. His Worship the mayor, Mr. Harindranath Dunuvila chaired the discussion and there were several scientists and engineers for this discussion. Several recommendations to alleviate the growth of blue green algae in the Kandy lake including short term, medium term and long term were formulated at this discussion. The mayor will monitor follow up action on these recommendations through the committee which has already been instituted.

Dr. Ross Sadler's visit was sponsored jointly by the Commonwealth Science Council, UK and by the Postgraduate Institute of Science. He is a specialist in algal toxins and conducted a session on this subject for the M.Sc. students following the Environmental Science programme.

Coordinators: Prof. S A Kulasooriya, Prof. O A Ileperuma

↑ WORKSHOPS (WS)/SHORT COURSES (SC)/TRAINING PROGRAMMES (TP)/TRAINING COURSES (TC) CONDUCTED SINCE 1996

Event	Co-ordinator/s	Period	No. of Particip-ants
1996			
Sampling Techniques (SC)	Prof. R O Thattil	Nov 18 - 20	25
1997			
Medical Statistics (SC)	Prof. R O Thattil	Feb 17 - 21	27
Electronics for A/L Physics Teachers (WS)	Prof. M A K L Dissanayake	Apr 03 - 05	49
Introduction to Microcomputers and Applications (SC)	Prof. R O Thattil	Aug 11 - 15	26
Application and Maintenance of Instruments in a Clinical Biochemistry Laboratory (SC)	Prof. H M N Bandara	Aug 11 - 22	29
1998			
International Workshop on Acid Rain Monitoring and Atmospheric Modelling (WS)	Prof. O A Ileperuma	Apr 20 -24	40
Mini Symposium on Algae Toxins	Prof. S A Kulasooriya	Apr 25 - 26	40
Training programme of microscopists from the North East (TC) (with WHO support)	Dr. P Amerasinghe	July 13 - 31	8
Natural Resources (WS)(with University of Sabaragamuwa)	Mr. A L T Hewawasam	July 18 - 19	50
Spread Sheets and Database Management (SC)	Prof. R O Thattil	July 20 - 24	20
NMR Spectroscopy (WS)(with Sida, SAREC & VARIAN support)	Prof. V Kumar	Sept 15 - 20	17
Achieving and Maintaining Quality and Productivity (SC)	Prof. W S Perriman	Oct 03 - 05	19
1999			
International Workshop on Science Education (WS)	Prof. M A K L Dissanayake	Jan 12 - 16	144
Biotechnology (WS)(with PGIA and UNESCO support)	Dr. P Amerasinghe Dr. A Perera	Feb 08 -18	20
Student Evaluation Systems (WS)	Dr. N C Bandara	Feb 13	51
Industrial Waste Management (SC)	Dr. A Senaratne	Apr 22 - 25 May 04 - 05	16
Nutrition and Food Security for School Teachers (TP) (with FAO & UNICEF support)	Dr. P Amerasinghe Mrs. A Karunaratne	June 04 - Aug 21 Phase II (ongoing)	18

Liquid Chromatography (WS)(with Sida, SAREC & NSF support)	Prof. V Kumar	July 20 - 24	18
Geo-scientific Writing (WS) 2000	Prof. P G Cooray	Nov 19 - 21	8
Basic Electronics (TC)	Prof. H M N Bandara	Jan 04 - 07	26
Methods in Basic Plant Taxonomy (TP)	Prof. I A U N Gunatilleke	Jan 13 - 16	12
Scientific Writing (WS)	Dr. N C Bandara	Mar 31 - Apr 01	43

SCHOLARSHIPS

Mahapola Scholarships

Scholarships ranging from Rs. 25,000/- to Rs. 30,000/- were awarded to the following seven students selected from four M.Sc. programmes by the Mahapola Higher Education Trust Fund in 1997.

Name of Student	M.Sc. Programme
B M M K Basnayake	Wildlife Ecology and Management
S Wijayamohan	Wildlife Ecology and Management
P M Thalagahagedera	Environmental Science
M R S Dias	Environmental Science
D N Hettiarachchi	Postharvest Technology of Fruits and Vegetables
U G Y M Manoja	Postharvest Technology of Fruits and Vegetables
M D L Francis	Gemmology

Asian Development Bank (ADB) Scholarships

Scholarships were awarded to the following fourteen students who were selected for the M.Sc. programme in Postharvest Technology of Fruits and Vegetables (1999/2000). The scholarships include full tuition fee (Rs. 30,000/-) and a monthly allowance ranging from Rs. 7200/- to Rs. 9600/-.

S T Balasuriya	C S Lekamge
H E M R L Bandara	M D Lokuliyana
E J S P Bogamuwa	P S Pathirana
K R Edirisinghe	W D Priyadharshani
A S K de Silva	R M R N K Ratnayake
P J C de Silva	S Ratnarajah
H M P C Herath	T S Samansiri

Sida/SAREC Scholarships

Scholarships ranging from Rs. 20,000/- to Rs. 40,000/- were awarded to the following seven students of the M.Sc. programme in Chemical Ecology and Pesticide Chemistry (1999/2000).

BGS Arundathie
ARRMK Athauda
RDP Dharmalatha
IW Goonasekera

BDP Somaratne
MMS Bogamuwa
TRW Thambugala
HMLK Amarawardana

PGIS RESEARCH GRANTS - 1999

Principal Investigator/s	Title of the Project
Dr. S H P P Karunaratne	Molecular mechanisms in insecticide resistance in Agricultural insect pests
Prof. O A Ileperuma Dr. R M G Rajapakse	Development of all solid state cells based on dye-sensitized nanoporous wide band-gap semi conductors and ionically conducting polymers
Dr. N Priyantha Dr. K U Tennekoon	Evaluation of tree species as potential candidates for metal ion uptake from polluted water
Dr. G A D Perera	Soil nutrient status across a chrono-sequence of forest age in the dry zone of Sri Lanka
Dr. P Saravanakumar	A comparative study of chromosome and DNA analysis of <i>Vigna umbellata</i> and <i>Vigna mungo</i>
Prof. M A Careem	Synthesis and characterization of electrically conducting polymers
Prof. B S B Karunaratne	Preparation and characterization of technologically important electro ceramic materials
Mr. R M U U B Amarasinghe	A study of creep type earthslips in Sri Lanka
Dr. R P U Karunasiri	Thin solid films: development of a growth equation and a computer code
Dr. S B P Athauda	Isolation, purification and characterization of natural inhibitors of aspartic proteinases
Prof. M A K L Dissanayake	Study of ionically conducting polymeric materials for possible device applications
Prof. B M R Bandara Dr. B C K Paranavithana	Survey of ayurvedic drugs used in the treatment of cancer, gastric ulcers, arthritis and asthma
Dr. D S Wijesundara Dr. W R Wimalasiri	

JUNIOR RESEARCH ASSISTANTSHIP (JRA) PROGRAMME

Every year the PGIS launches a Junior Research Assistantship (JRA) scheme aimed at providing an opportunity for brilliant Sri Lankan students who have excelled at the G.C.E. (A/L) Science Examination. This is an excellent opportunity for young students to share the excitement and experience of scientific research by working with eminent scientists, prior to embarking on university education. The Junior Research Assistants (JRAs) are expected to carry out research work under the guidance of Senior Scientists in Faculties of Science. The Junior Research Assistantship is a

full-time temporary position with a monthly allowance of Rs. 3000/-. After calling for applications by press advertisement, the final selection of JRAs is based on their examination results and performance at an interview conducted by a Panel of Senior Scientists with the Director of the PGIS as chairperson. The fourth batch of Junior Research Assistants whose names and affiliations appear below are expected to join the PGIS on April 24, 2000:

Mr. L Abeynaike (St. Joseph's College, Colombo)
Miss. P Abeyweera (Mahamaya Girls' College, Kandy)
Miss. A G M P Chandrasinghe (Southlands College, Galle)
Mr. B K Dassanayake (Trinity College, Kandy)
Mr. A. Elankumaran (Jaffna Hindu College, Jaffna)
Mr. M Gajamohan (Hindu College, Colombo)
Mr. G M R I Godaliyadda (Trinity College, Kandy)
Mr. A S Indatissa (Ananda College, Colombo)
Mr. H K G D P Janakarathne (Dharmaraja College, Kandy)
Miss. A M P W Karunarathne (Maliyadeva V., Kurunegala)
Mr. PRWMTD Karunathilake (Dharmaraja College, Kandy)
Miss. L N Liyanage (Sujatha Balika Maha Vidyalaya, Matara)
Miss. VC Liyanapathirana (Pushpadana Girls' College, Kandy)
Mr. S H Pathirathne (Dharmaraja College, Kandy)
Mr. D N Porawakaarachchi (Trinity College, Kandy)
Mr. P C Rodrigo (Sivali Madya Maha Vidyalaya, Ratnapura)
Miss. H N De Silva (Girls' High School, Kandy)
Mr. A Weerasekera (Rahula Vidyalaya, Matara)
Mr. D Weerathunga (Nalanda College, Colombo)
Miss. A S T D N Wickramaratna (Devi Balika V., Colombo)

FORTHCOMING EVENTS - 2000

- Workshop on Enzyme-Linked Immunosorbent Assays (ELISA), April 3 - 8, 2000
- Programme for Junior Research Assistants (4th batch) - April 24, 2000
- Workshop on Insect Toxicology, April 25 -27, 2000
- M.Sc. programme in Computer Science - May 06, 2000
- Workshop on Meteorology, June 6 - 9, 2000
- Workshop on Plant Systematics, June 24 - 26, 2000
- M.Sc. programme in Industrial Mathematics
- M.Sc. programme in Engineering Geology & Hydrogeology
- National workshop on Geology for Engineers

FOREIGN APPLICANTS FOR PGIS PROGRAMMES

PGIS entertains applications from foreign students for admission to its M.Sc., M.Phil. and Ph.D. Programmes. Special reduced rates of fees are available to students from SAARC countries. For details, please contact Assistant Registrar, PGIS.

Fax: 94 8 389026; Phone: 94 8 387542; e-mail: director@pgis.pdn.ac.lk
