### **Third Academic Sessions**



## Proceedings of the Third Academic Sessions University of Ruhuna

30th January, 2006

#### **Editorial Board**

Prof. M. de S. Liyanange

Prof. Ms. Chitra Pathirana Prof. R.H.S. Rajapakse Dr. Aruna Amarasiri

Dr. Sanath Hettiarachchi Rev. Dr. M. Nandawansa Thero Ms. Indrani Withanawasam

Mr. Nimal Hettiarachchi

(Editor-in-Chief)

Dept of Crop Science, Faculty of Agriculture
Dept. of Biochemistry, Faculty of Medicine
Dept. of Agric. Biology, Faculty of Agriculture
Dept. of Civil & Environmental Engineering,
Faculty of Engineering
Dept. of Botany, Faculty of Science
Dept. of Pali & Buddhist Studies, Faculty of H&SS
Dept. of Accounting & Finance, Faculty of
Management & Finance
Library

# Proceedings of the Third Academic Sessions

ISSN: 1391-8613

## All Rights Reserved.

© 2006 Editorial Board, Third Academic Sessions
University of Ruhuna
Matara
Sri Lanka.

No part of the material protected by this copyright notice may be reproduced or utilized in any form or by any means, electronic or mechanical, including, recording or by any information storage and retrieval system, without written permission from the copyright board of the Academic Sessions, University of Ruhuna, Matara, Sri Lanka.

The correct citation of the proceedings:

Author(s), 2005. Title of paper. In: Proceedings of the Third Academic Sessions, University of Ruhuna (Editor-in-Chief M.de S. Liyanage), pp. The University of Ruhuna, Matara, Sri Lanka.

#### Preface

The Third Annual Academic Sessions of the Ruhuna University was held on 30<sup>th</sup> January 2006 on a broad theme "Research for National Development". In conjunction with this event, the second Vice-Chancellor's award ceremony took place, to reward the efforts of outstanding academics, who have excelled in their professional career during the past year.

The main purpose of holding the annual academic sessions is to bring together both staff and students of all faculties and provide a common platform to present and share their latest research findings with colleagues, academic community and stakeholders. Further, it will give them an impetus to demonstrate their oral and written communication skills.

The core technical programme comprises the oral and poster sessions and a display of innovations and inventions by the staff and students. Further, those who presented the best scientific paper/poster from each faculty were rewarded as a source of motivation and encouragement.

This proceedings carries 53 research papers presented at the oral and poster sessions on a broad range of subjects and disciplines, contributed by the staff and students of the Faculties of Agriculture, Medicine, Engineering, Science, Humanities & Social Sciences, and Management & Finance. A notable feature of this year's session is that a special session has been organized to discuss the main findings of the recovery and restoration programme implemented by the staff and students, following the Asian Tsunami that struck the southern coastal belt on 26 December, 2004.

I wish to congratulate the recipients of the Vice-Chancellor's awards and those who presented papers at the oral and poster sessions. I sincerely thank Ms. Shyamalie Palihakkara and Mr. Rivikalana Wengappuli for their time and effort in word processing and compiling the proceedings. Financial support given by National Science Foundation is gratefully acknowledged. Finally, I wish to extend my sincere thanks and gratitude to the authors and co-author of papers, the reviewers and academic and non-academic staff for their assistance and co-operation in making this event a success.

Prof. Mahi de S. Liyanage Editor-in-Chief

30<sup>th</sup> January, 2006

### Message of the Vice-Chancellor

I am pleased to send this message felicitating the staff and students who would be making presentations at the Third Academic Sessions of the University of Ruhuna. We held the First Academic Sessions in 2003 - the Silver Jubilee Year of the university and it is heartening to note that the academic sessions have now become an annual event of the university, fostering and nurturing research culture.

As a University committed to academic excellence, high impact research, community development and international cooperation, we are proud to witness an improvement both in quality and relevance of research performed by our staff. In keeping with our vision of creating a multidisciplinary borderless university, we are keen to see more and more research being undertaken across disciplinary boundaries, forming dynamic and winning multidisciplinary teams with synergies.

At the academic sessions, a separate session is devoted to Post-tsunami Recovery and Rehabilitation, which reflects the active engagement of the university staff in post-tsunami relief, rehabilitation and reconstruction studies.. This session is attended by national as well several international scientists and by some leading NGOs and INGOs.

Last year, we introduced the Vice-Chancellor's Awards Scheme with a view to honouring and recognizing the outstanding staff and students of the university and motivating the staff for excellence. Under this motivation award scheme, this year we will be rewarding the most outstanding scholar, most outstanding junior scientist, most outstanding staff innovator/inventor, highest research grants recipient and the most outstanding tsunami relief provider. We will hold this landmark event in conjunction with the third academic sessions and have invited His Excellency Jurgen Weerth, the Ambassador of the Federal Republic of Germany as the chief Guest.

It is our hope this dual event will promote and foster academic excellence, innovations, high impact interdisciplinary research, community service and international linkages, making the University of Ruhuna not only a leader, but also a model in the higher education landscape of the country.

While heartily congratulating the Vice-Chancellor's awards recipients and expressing my deep gratitude to members of the Organizing Committee headed by Prof. M. de S. Liyanage for organizing this event in a grand and imposing manner, I wish Third Academic Sessions every success!

Prof. Ranjith Senaratne Vice-Chancellor

30th January 2006