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Symposium on  
Environment Management and Planning*

**2015**

**Waters Edge, Battaramulla  
Sri Lanka**

*23<sup>rd</sup> - 24<sup>th</sup> February 2015*



**Organized by**

*Central Environmental Authority  
Sri Lanka*

**International Symposium on “Environment Management and Planning 2015”**

**Central Environmental Authority**

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## Preface

*The Central Environmental Authority (CEA) was established on 12<sup>th</sup> August, 1981 under the provisions of the National Environmental Act, No.47 of 1980 which is mandated to function as the regulatory and coordinating agency with respect to all matters pertaining to the protection and management of the environment of Sri Lanka. Considering the global characteristics of environment related problems, international cooperation activities have become a top priority. We need the best scientists, students and researchers to understand the environmental changes that are taking place in the globe today and in the future, will have on the eco-systems, and how best to preserve them. International collaborations in environmental research can be tremendously rewarding and productive. This endeavor aims to bring together leading academic scientists, researchers and students to exchange their ideas and experiences about all aspects of the environmental management and planning.*

*The main purpose of having an international symposium is to investigate vital applied researches on environment management which can be in cooperated in national development process by the Central Environmental Authority and other stakeholders of the country. Second, is to publish an international journal on environment which will expose the Central Environmental Authority to scientific community of the world while opening a new vision to the organization.*

*It is tremendously important and essential to blend the wisdom of young scientists especially in the field of environmental sciences who are capable and enriched in knowledge and skills in addressing stressing issues of the present globe in the streams of environmental sustainability and the health of the people all around the world. Therefore having an event like this will provide a unique foundation for young scientists to express their ideas and findings and share their knowledge in research and development to construct a network of professionals, researchers, scientists and policy makers in the field of environmental sciences while exposing to a broader area of knowledge.*

*The world is currently facing the greatest Environmental externality ever to be experienced by humanity. Global warming related climate changes, heavy rains and devastating floods as experienced by Sri Lankans recently. This is mainly due to the unprecedented growth, industrialization and urbanization.*

*It is in this crucial juncture that Central Environmental Authority decided to discuss this pivotal problem at length with national and international experts, researchers and students and arrive at decisions which will solve and improve protecting the environment and ultimately benefit the whole mankind. In such circumstances this symposium between experts, researchers and scholars in Sri Lanka and other countries is most timely and high quality research and a memorable experience is guaranteed.*

## **Message from Secretary**

***Eng. Nihal Rupasinghe***  
***Secretary***  
***Mahaweli Development & Environment***



*It is with great pleasure that I pen this message on the opening session of the International Symposium on Environment Management and Planning.*

*I am quite aware of the tedious tasks that are involved in organizing an International Symposium of great importance which will have bearing on whole mankind. This symposium organized by the Central Environmental Authority where many local and international researchers, undergraduates and scientists will participate and collaborate on this all important topic. The world is currently facing the greatest Environmental externality ever to be experienced by humanity. Global warming related climate changes, heavy rains and devastating floods as experienced by Sri Lankans recently. This is mainly due to the unprecedented growth, industrialization and urbanization. Over exploitation of natural resources such as land, energy and clearance of forests have caused major environmental threats apart from endangering all gains from economic growth.*

*It is in this crucial juncture that Central Environmental Authority decided to discuss this pivotal problem at length with national and international experts researchers and students and arrive at decisions which will solve and improve protecting the environment and ultimately benefit the whole mankind.*

*I welcome all the local and foreign participants for their presence and contributions and thank our dedicated staff who has worked relentlessly to make this symposium a success.*

***Eng. Nihal Rupasinghe***

## **Chairman's Message**

***Prof. Lal Mervin Dharmasiri***  
***Chairman***  
***Central Environmental Authority***



*Let me first congratulate the Director General and the dedicated staff for having organized this all important symposium with great success. I am aware of the huge efforts and commitment that is needed to organize an activity of international stature. The Central Environmental Authority is mandated under the national environmental act "to conduct, promote and coordinate research in relation to any aspect of environmental degradation or the prevention thereof, and to develop criteria for the protection and improvement of the environment". It is also responsible for the prevention, subside and control of pollution. The research symposium is organized under the themes of 'natural resource management, pollution control, innovation, geo- informatics, environmental education and sustainable development'. Participants are provided with substantial opportunities to interact with distinguished experts and work in collaboration in order to fulfill the requirements of the themes of the symposium and to improve discipline thinking and develop skills. It will promote forward thinking insightful and valuable perspectives on the strategic challenges of the environmental sciences sector. Participants will also face challenging and enriching series of research projects carried out by them both local and international.*

*While welcoming the foreign delegates who have come for this symposium I am sure their collaboration and cooperation and their recognition are of immense value to improve and protect the environment which will ultimately benefit all living beings.*

***Prof. Lal Mervin Dharmasiri***

## **Message from the Director General**

***Mr. K. H. Muthukudaarachchi***  
***Director General***  
***Central Environmental Authority***



*Today, we are celebrating something we consider to be very special. New ideas, of course, never exist in isolation. Considering the global environment related problems, international cooperation and partnership have become a top priority. We need the best scientists, students and researchers to understand the environmental changes that are taking place in the global eco –systems today, tomorrow and in the future. And also to explore appropriate solutions to preserve them as they are. International collaborations in environmental research can be tremendously rewarding and productive. This endeavor aims to bring leading academic scientists, researchers and students together and exchange their ideas and experiences about all aspects of the environmental management and planning.*

*It is very important and essential to blend the wisdom of young scientists especially in the field of environmental sciences who are capable and enriched in knowledge and skills in addressing critical issues of the world in the aspects of environmental sustainability and public health. Therefore having an event like this will provide a unique foundation for young scientists to express their ideas and findings and share their knowledge in research and development to construct a network of professionals, researchers, scientists and policy makers while exposing to a broader area of knowledge.*

*The main purpose of having this international symposium is to investigate feasible researches and transform them in to practical actions in national development processes and also to publish an international journal on environment while opening a new vision to the organization.*

*Without a doubt, I can assure this event as a platform to share standard research findings that will cater the demands of the participants to a maximum level of satisfaction with a memorable experience.*

*I wish you all a successful day at the symposium.*

***K. H. Muthukudaarachchi***

## **Message from the Symposium Coordinator**

***Dr. Ajith Gunawardena  
Symposium Coordinator  
Central Environmental Authority***



*It is with great honor and pride I write this message on our First International Symposium on Environment and Management and Planning conducted by the Central Environmental Authority. I personally believe that the opportunity created by the Central Environmental Authority to stage this symposium with the researchers, scientists and students all over the world to express their ideas on Environmental Management is a great step taken as a leading governmental organization, by providing a stepping stone for them to achieve the goals of their chosen carrier paths as well as for the global development process.*

*Organizing a mega event like this nature for the first time is a challenging task. The seeds were planted several months back with the blessings of the board of management at CEA, with a team of dedicated personalities. The time has come to reap a richer harvest of the untiring effort and team work.*

*There are six themes selected for the symposium which includes 138 abstracts under these categories. The review process resulted in accepting 43 abstracts for the oral presentations and 11 poster presentations. In addition to that, the event is enriched by seven invited key note presentations of the eminent scientists from leading institutions from different parts of the globe.*

*I wish to convey my sincere gratitude to the, Board of Management of the CEA, Key note speakers, Steering Committee, Organizing Committee, the Editorial Board and Sponsors of the symposium for their valuable support and everyone else who contributed to the success of the event.*

***Dr. Ajith Gunawardena***

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*February 24, 2015*

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*(Venue: Eagle, Waters Edge)*

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- Keynote Speaker : Dr. Peter G. McCornick  
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- Session Coordinator : Mr. Tilak Premakantha  
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### **SESSION 2: Geo-informatics Applications in Environmental Management**

*(Venue: Albetrose, Waters Edge)*

- Chairperson : Dr. H. Manthrilake  
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International Water Management Institute
- Keynote Speaker : Dr. Lal Samarakoon  
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- Session Coordinator : Mr. R. M. Kulasena  
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### **SESSION 3: Environment and Sustainable Development**

*(Venue: Nelum, Waters Edge)*

- Chairperson : Prof. W.M.T.B. Wanninayake  
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Senior Marine Biologist
- Keynote Speaker : Prof. Sawada Haruo  
University of Tokyo
- Session Coordinator : Mr. Chathura Malwana  
Deputy Director, Central Environmental Authority

### **SESSION 4: Pollution Control and Management**

*(Venue: Eagle, Waters Edge)*

- Chairperson : Dr. Ananda Mallawathanthri  
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The International Union for Conservation of Nature
- Keynote Speaker : Prof. Ryo Honda  
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- Session Coordinator : Mr. Tilak Premakantha  
Regional Deputy Conservator of Forests  
Forest Department – Sri Lanka

## **SESSION 5: Environmental Innovation**

*(Venue: Albetrose, Waters Edge)*

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Legal Consultant,  
Central Environmental Authority
- Keynote Speaker : Prof. Ajith de Alwis  
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## **SESSION 6: Environmental Education and Awareness**

*(Venue: Nelum, Waters Edge)*

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- Keynote Speaker : Dr. Upali Sedara  
Rector, Sri Lanka Buddhist Association  
Kundasale, Kandy
- Session Coordinator : Mr. Chathura Malwana  
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