



# Proceedings of the Expert Dialogue Forum on Blue Green Economy & Sustainable Natural Resources



**17<sup>th</sup> - 19<sup>th</sup> October, 2016**  
**Mihilaka Medura, BMICH**

## Team

### Advisor :

- Mr. Udaya R. Seneviratne - Secretary, Ministry of Mahaweli Development & Environment

### Working Group:

- Dr. O.K. Dissanayake - Chairman, Geological Survey & Mines Bureau
- Dr. Terney Pradeep Kumara - General Manager, Marine Environment Protection Authority
- Dr.Prashan Francis - Director General, Gem & Jewelry Research Institute
- Mr. Gamini Wickramapala - Director, Policy & Planning, Ministry of Mahaweli Development & Environment
- Ms. Hasula Wickremasinghe - Programme Assistant, Climate Change Secretariat, Ministry of Mahaweli Development & Environment

### Compiler :

- Ms. Hasula Wickremasinghe - Programme Assistant, Climate Change Secretariat, Ministry of Mahaweli Development & Environment

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## **The Programme**

**Date: 17<sup>th</sup> October 2016**

### **Theme 1: Paris Agreement & INDCs of Sri Lanka**

#### **Presenters:**

- Prof. W.L. Sumathipala - Consultant, Ministry of Mahaweli Development & Environment
- Ms. Vositha Wijenayake - Director, SLYCAN Trust

#### **Panel:**

- Mr. Kapila Gunaratne – Consultant
- Mr. Buddhika Hemashantha - CEO, Sri Lanka Climate Fund

#### **Facilitator:**

- Dr. Sunimal Jayathunga - Director, Climate Change Secretariat, Ministry of Mahaweli Development & Environment

**Date: 18<sup>th</sup> October 2016**

### **Theme 2: Green energy**

### **Theme 3: Climate technologies**

#### **Presenters:**

- Mr. Sena Pieris - Consultant, Faculty of Graduate Studies, University of Sri Jayawardenapura
- Mr. Dorian Penner - Consultant, Climate City
- Mr. Philippe Jouteux - Consultant, Climate City
- Mr. Laurent Sauvage - Consultant, Climate City
- Mr. Jacques Coves - Consultant, Climate City

#### **Panel:**

- Mr. Harsha Wickremasinghe - Dpty. Director, Sri Lanka Sustainable Energy Authority
- Mr. P.G. Joseph - Consultant, Nature Products
- Mr. Parakrama Jayasinghe – Consultant, Bio Energy Association

### **Theme 4: Green Buildings**

#### **Presenters:**

- Prof. S. Kotagama - Consultant, Ministry of Wildlife & Sustainable Development
- Prof. Ranjith Dissanayake - Senior Lecturer, University of Peradeniya
- Prof. Ajith De Alwis - Senior Lecturer, University of Moratuwa

#### **Facilitator:**

- Archt Plnr. Piyal Silva - Green Building Council of Sri Lanka

## **Theme 5: Green Transport**

### **Presenters:**

- Dr. Thusitha Sugathapala - Senior Lecturer, University of Moratuwa
- Dr. Dimantha De Silva - Consultant, WRMPP, Snr Lecturer, University of Moratuwa

### **Facilitator:**

- Dr. Don Jayaweera

### **Panel:**

- Prof. Saman Bandara

**Date: 19<sup>th</sup> October 2016**

## **Theme 6: Oceanic Non-Living Resources & Sea-Level Rise**

### **Presenters:**

- Prof. J. Katupotha - Emeritus Professor, University of Sri Jayawardenapura
- Dr. Upul Premaratne- Senior Lecturer, University of Ruhuna

### **Panel:**

- Prof. J. Katupotha - Emeritus Professor, University of Sri Jayawardenapura
- Dr. Nalaka Ranasinghe - Senior Lecturer, University of Moratuwa
- Dr. Terney Pradeep - General Manager, Marine Environment Protection Authority

## **Theme 7: Climate Change & Health, Water, Forestry**

### **Presenters:**

- Prof. Hemanthi Ranasinghe - Senior Lecturer, University of Sri Jayawardenapura
- Dr. Inoka Suraweera - Consultant, Ministry of Health & Indigenous Medicine
- Dr. H. Manthirithillake - IWMI

### **Facilitators:**

- Prof. Saroj Jayasinghe - Medical Faculty, Colombo
- Dr. Erandi Lokupitiya - Senior Lecturer, University of Colombo

## **Theme 8: Eco-Geo Tourism**

### **Presenters:**

- Dr. Nalaka Ranasinghe - Senior Lecturer, University of Ruhuna
- Mr. Ravi de Silva - Consultant

### **Panel:**

- Dr. Siriwardena - Dpty Director, GSMB
- Mr. Indrajith De Silva - Asst. Director, Sri Lanka Tourist Board
- Mr. Ranil Nanayakkara - Consultant
- Ms. Rajini De Silva - CEO, Ebert Silva Travels

## **Introduction**

Sri Lanka is a signatory to the Paris Agreement and a party that ratified this agreement. Therefore, we are committed to uphold the resolutions that had been agreed upon by world's leaders to limit the rise of global warming and to reduce emissions of greenhouse gases. This commitment was made in view of the fact that Sri Lanka is highly vulnerable to adverse effects of climate change that affect all social, economic and development activities.

The government of Sri Lanka has gone beyond general expectation and has strived to bring about a "Blue Green Economy" combining both marine and terrestrial resources focusing on a future of sustainable development.

The declaration of "Sri Lanka NEXT - A Blue Green Era" commences an economic strategy based on blue green sustainable development. It is an opportunity to participate in economic development while protecting the environment. Under Blue or Ocean economy, sustainable development strategies will be utilized for oceanic, marine and coastal fish, biological and mineral resources and for the development of sports, industries, energy and medicine while concentrating on research on maritime archaeology and anthropology.

This conference which was held from 17<sup>th</sup>-19<sup>th</sup> October 2016 contained symposiums, Innovative Technological Forums, Exhibitions, etc. which were held in parallel.

Sri Lanka is rich in natural resources and a majority of industries have arisen in the export trade. Further, there are many other natural resources especially in the mineral and marine sectors which could be sustainably utilised as an income generation source for Sri Lanka.

Furthermore, with the advent of the Paris Agreement and resulting Intended Nationally Determined Contributions, Sri Lanka has embarked on Green Technologies to reduce Greenhouse Gas emissions.

Therefore, an Expert Dialogue Forum on Blue Green Economy with special reference to sustainable natural resources was held in order to discuss the economics of various components in relation to climate change and natural resources.

The sessions discussed the feasibility and possible scope of utilizing natural resources in a sustainable manner as well as the feasibility of green technologies and low carbon strategies towards the sustainability of development processes.

Experts from relevant fields were invited to conduct sessions and the forum targeted stakeholders, policy makers, university students, experts and interested parties.

## **Summary of Presentations**

### **Thematic area: Paris Agreement & INDCs**

#### **1<sup>st</sup> Day: Technical Session 1**

##### **Presentation 1: Prof. W.L. Sumathipala**

###### **Title: Paris Agreement & Intended Nationally Determined Contributions**

One of the main measures of the Paris Agreement was to initiate action to keep global temperature increase “well below” 2°C (3.6F) and to pursue efforts to limit it to 1.5°C.

Sri Lanka submitted its INDCs in October 2015 and re-submitted with revisions in April 2016. Further, Sri Lanka signed the Paris Agreement on 22nd April 2016 and ratified on September 2016.

Sri Lanka’s Nationally Determined Contributions contain Mitigation- Reducing the Greenhouse gas emissions of which the key contributors are carbon dioxide, methane and nitrous oxide; Adaptation – building resilience in most vulnerable communities, sectors and areas that have adverse effects of climate change; Loss & Damage – a local mechanism to be developed in accordance with Warsaw mechanism to address issues related to losses and damages resulting from extreme weather events.

A Readiness Action Plan is being prepared to prioritize actions to reduce the greenhouse gas emissions and undertake adaptive measures which are to be incorporated into the respective Ministries work plans. The NDC implementation will commence in 2020 in order to achieve the targets by 2030.

##### **Presentation 2: Ms. Vositha Wijenayake**

###### **Title: Status of the Global INDCs**

The Paris Agreement would enter into force 30 days after the date on which at least 55 parties to the Convention accounting in total at least an estimated 55 % of global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession.

The ratification on its own by a country will not be sufficient for the Paris Agreement to enter into force at the global level. The ratifications by the countries need to be communicated, and the relevant instruments deposited with the Depository.

In addition, the Agreement focuses on the provision of financial flows, a new technology framework and capacity building, as well as loss and damage which was declared and a separate element on its own and not treated together with adaptation. The Paris Agreement also focuses on a robust transparency and accountability framework which will be key to compliance, and requires countries to put in their best efforts when addressing emission reduction through Nationally Determined Contributions.

## ***Discussion***

Each Ministry acts in isolation and cross cutting areas are dealt with individualistically. In order to counteract the problem, Planning and Monitoring Committees were appointed Chaired by the Secretary of the Ministry in charge of the subject. Readiness Action Plans are being prepared to initiate adaptation and mitigation actions. The participants also queried as to what actions have been taken to prevent ‘dirty’ industries coming through the BOI and new Indian and Chinese partnerships.

## **Thematic area: Green energy & Technologies**

### **2<sup>nd</sup> Day: Technical Session 1**

#### **Presentation 1: Eng. V.R. Sena Peiris**

##### **Title: Green energy: New trends and opportunities in industrial and commercial applications**

Green energy refers to energy derived from renewable sources with a low environmental impact and includes solar, wind, geothermal, biogas and hydroelectric energy. Green energy sources don't create harmful greenhouse gases at the same rate as fossil-fuel energy sources.

Though these green energies are non- polluting, there are many issues in their application such as their intermittent availability, different intensities, they are non-uniform geographically, their availability cannot be forecasted and they need to be stored.

In an attempt to cut down costs a majority of industries have resorted to utilizing green energy instead of fossil fuels. Hot water, hot air, direct heating / drying, electricity, illumination, air conditioning (cooling & heating) are some of the applications in industries.

With global warming as it is today with Sri Lanka facing an energy crisis, it is timely that we seek a global sustainable energy economy and mitigate the carbon challenge with the necessary policies.

#### **Presentation 2: Laurent Sauvage, Jacques Coves, (Climate City)**

##### **Title: Innovative Climate Technologies**

Climate City is an organization which contracts to assess air quality and provides climate data. Technology used is designed to observe climate changes at local and hyper-local levels, using mobile assets that can be configured to suit specific situations. Aerial platforms “Climate Birds” are designed to carry unique sensing instruments based on latest miniaturization and digitization technologies. Different types of Climate Birds are available, they are High payload boreal drones, tethered balloons, which have capacity to collect data of cities from 0m -1500m altitude in the atmospheric boundary layer.

The continuous availability of such data could be utilized to build production and forecasting models when development programmes are envisaged for cities. Since, cities expand, the data availability will assist to take adaptive and mitigatory measures in the face of extreme weather events.



## ***Discussion***

Low carbon technologies are too costly. Steps have to be taken to provide incentives (especially for the private sector) if we are to promote these. The Surya Sangramaya has initiated 10,000 domestic solar roofs programmes in order to decrease the dependency on the national grid. The life cycle of material, how frequently does it have to be replaced, and cost of the technology was highlighted.

Climate bird technology is very expensive. With the weather patterns and Sri Lanka being an island the effectiveness of this technology and its feasibility was discussed.

## **Thematic area: Green Buildings**

### **Technical Session 2**

#### **Presentation 1: Prof. S.W. Kotagama**

##### **Title: Addressing challenges of climate change and creating sustainable built environment**

Climate change had existed for many years but, it was identified as a global phenomenon with the establishment of the United Nations Convention on Climate Change.

On reflecting how global warming has progressed in an exponential manner, at the bottom lies people's attitudes, uncontrolled use of biocides, pollution, etc. Rachel Carsons book "Silent Spring" (1962) spelled out the impacts of the use of chemicals. From milestones such as the UN Conference on Human Environment (1972), Our Common Future (1987), Rio + 20, Sustainable Development to the COPs.

Of the global CO<sub>2</sub> emissions buildings (electricity + heat + construction) emit 47% of CO<sub>2</sub>. Today, urban climate and specifically extreme heat, pose a threat to both urban residents and environments. We need to strive for low carbon technologies and reduce emissions. Therefore, sustainable development is the only future.

#### **Presentation 2: Prof. Ranjith Dissanayake**

##### **Title: Application of Green Building concept to transform the construction industry with green building practices**

Without sustainability, the future generations will have to face many disasters. Unless we use green technologies, green construction materials and green energies, humans will have to face the depletion of natural resources.

There are three components of sustainability; they are environment which supports Earth's life support system; social meaning maintenance of communities; and economic which is the maintenance of an economic system that provides a non-declining standard of living for this and future generations.

We have to be mindful of the materials used, their lifecycles, reaction to extreme weather events when utilizing them in the construction industry. Concepts and designs for green buildings have to be adapted when modifying or constructing new buildings and for architectural designs.

Green buildings, green energy and green communities are the solution to sustainability.

### **Presentation 3: Prof. Ajith De Alwis**

#### **Title: Realizing Sustainable Development in Sri Lanka**

The sustainability architecture of the green economy is the natural profits that arise through green energy, green manufacturing, green machines & green process units and green products. Any innovation that reduces the use of natural resources (including materials, energy, water, biomass and land) and decreases the release of harmful substances across its whole life cycle is called eco-innovation. We need to re-think and adopt these new technologies for the sustainability of built environments.

#### *Discussion*

At Thulhiriya, Agalawatte, Sigiriya there are factories that have been built on the guidelines of the 'green' concept. With the ban on asbestos we need to look for alternatives and into local technology and material. Most of the green building concepts target big buildings and not those at households. With population increase what would become a problem is how to go in for green technologies like biogas when there is very little garden space and the practical problems faced especially with the regard to disposal of waste.

#### **Thematic Area: Green transport**

#### **Technical session 3**

#### **Presentation 1: Dr. Thusitha Sugathapala**

#### **Title: Green Transport - Present status and interventions in Sri Lanka**

Transportation activities support increasing mobility demands for passengers and freight and this ranges from urban areas to international trade. But, transport activities have resulted in growing levels of motorization and increased congestion and emissions. Green transport encourages avoidance or reduction of travel and the need to travel; shifting to more environmentally friendly modes; improvement of energy efficiency of transport modes and vehicle technology. The transport sector in Sri Lanka is dominated by road transport. Demand for fossil fuels is 67.3% for the transport sector alone. Green transport initiatives have been conducted to reduce emissions, increase energy efficiency and technology shift in LDVs. The national level/ policy interventions such as the Intended Nationally Determined Contributions have targeted a 10% GHG emission reduction target by 2030.

#### **Presentation 2: Dr. Dimantha De Silva**

#### **Title: Transport solution for Megapolis with a green touch**

With 10 million Passenger Daily trips within the Colombo Metropolitan Region and 1.9 million Daily Passengers entering the Colombo Municipal Council limits each day (2013 data) and a further exponential increase in the population, the Need for Travel will increase. The Megapolis Transport Proposal contains public transport improvements; road

infrastructure improvements; transport demand management and environmentally sustainable transportation. One of the technological innovations being promoted is the Rapid Transit System (RTS) with Light Rail Transport (LRT). Further, environmentally sustainable systems especially non-motorized travel such as bicycling and walking will be promoted. There is also a drive towards encouraging the use of public (mass) transport systems than private transport systems, supplemented by inland water transport.

### ***Discussion***

There is an increase in personal electric cars which may be a contribution to traffic congestion. The move should be to have electric buses and divert the individuals towards mass transport. The disposal of the lithium battery is also of concern. Park and Ride systems should also be considered.

### **Thematic area: Ocean non - living resources & Sea level rise**

#### **3<sup>rd</sup> Day - Technical session 1**

##### **Presentation 1: Dr. Upul Premaratne**

###### **Title: Non-living ocean resources**

Sri Lanka's Exclusive Economic Zone is 200 nautical miles and is eight times the size of the land area. The Sri Lankan government has the exclusive rights to living and non-living resources in the water column, sea bed and subsurface under the EEZ. Oil and gas, salt, limestone, sand and gravel, gas hydrates etc. are non-living ocean resources. The occurrence of an active petroleum system has been confirmed in the Gulf of Mannar. Sri Lanka is rich with mineral and other natural resources but, studies have to be carried out to assess the financial feasibility of extraction and the use of non - destructive methods in order to retain the sustainability.

##### **Presentation 2: Prof. Jinadasa Katupotha**

###### **Title: Sea level changes - Global & Sri Lanka**

In addition to sea-level caused by the transfer of seawater to and from glaciers, sea water volume can change due to thermal expansion and contraction. For every 1°C decrease in the mean temperature, world - wide sea level will drop by 2m. Fauna from Pleistocene ocean sediments suggest a 5 degree lower surface temperature at that time, which would have resulted in a 10m lower sea level due only to thermal reduction.

In Sri Lanka, however, sea level was at least 1.0m or higher than present msl, from mid-Holocene (Main Atlantic) to Late Holocene (Early Sub - atlantic), with minor oscillations. It is assumed that local palaeo - sea level was not lower than at present during above-mentioned period in accordance with biological and chemical evidence.

## *Discussion*

Oil and gas has been found in the Gulf of Mannar but, we are yet to assess the economic feasibility of its extraction. We have not yet explored the more accessible marine resources. There is a need to encourage this type of research.

With global warming, the probability of sea level rise is definite. There is a need to conduct a vulnerability assessment for the coastal region and prepare adaptation plans.

## **Thematic area: Climate Change; Water, Forests & Health**

### **Technical session 2**

#### **Presentation 1: Dr. H. Manthirithilleke**

##### **Title: Water - Challenges of change**

In Sri Lanka, deviations in temperature has resulted in uncertainty in availability of water resources. Increased rainfall variability indicates diminishing water supplies during the last couple of decades. The general consensus is that there would be a gain in Mean Annual River Flow but with increased variability, the North eastern and Eastern dry zone may become even drier and the Hill country there would be a lower water availability in the upper Mahaweli region by 2025. Identifying vulnerability hot spots for climate change to design locally relevant adaptation measures is necessary.

Water storage will increasingly be an important means to create resilience in the future. It is important to look at a range of storage options, above and below the ground, small and large, serving different needs and different groups of people, behaving differently under climate change scenarios and requiring different levels of investment and operation and maintenance. We need to adopt efficient systems so that there will be ground water recharge.

Sri Lanka's available freshwater resources, though yet abundant, are limited. This requires improved management of the water sector by taking into account the ramifications of climate change and possible adaptation measures during national planning.

## *Discussion*

We do not have a comprehensive national study on possible impacts on water resources. We need to identify optimal, environmentally sensitive, sustainable water storage scenarios and their management for Sri Lanka under current and future climates. How much to store? In what form? And how much to release are key questions.

Low cost mobile weather stations can record weather related variables (rainfall, wind speed) electronically and send all information to one website. Irrigation Department office in Anuradhapura is currently conducting a pilot study.

## **Presentation 2: Prof. Hemanthi Ranasinghe**

### **Title: Climate change & forests**

Rate of carbon absorption differs with the forest type. Closed forests have more capacity to store carbon than open forests and woodlands. Undisturbed forests store more carbon than degraded forests. Wet or moist forests store more carbon than dry or semi-arid forests. Mature forests store more quantities of carbon than do young forests. Deforestation is the largest source of CO<sub>2</sub> and other GHG emission from forested areas. There is a necessity to identify vulnerable areas and prepare contingency plans, assess vulnerability of coastal vegetation/ mangrove and other ecologically vulnerable areas and evaluate response strategies. Promote use of alternative materials like plastic, fiber glass and steel. Promote urban forestry to establish vegetation in urban and metropolitan areas. Reducing Emissions from Deforestation and Forest Degradation (REDD) is a programme tends to create a financial value for the carbon stored in forests and invest in low carbon paths to sustainable development.

### ***Discussion***

The promotion of use of alternative materials like plastic and fiber glass is questionable since it takes longer to degrade in the environment. Native species tend to store more carbon than exotic species. Therefore, we need to discourage the plantation of exotic species by the Forest Department. Further, they need to grow not only timber species but threatened and endemics that are necessary for the stability of a forest.

## **Presentation 3: Dr. Inoka Suraweera**

### **Title: Effects of climate change on health**

The WHO has estimated that our warming climate, partly caused by CO<sub>2</sub> pollution contributes to >150,000 deaths per year. The potential health effects of climate change is heat, severe weather conditions, air pollution, allergies, vector borne diseases, water borne diseases, scarcity of water and food supply, mental health and increase of environmental refugees. The primary populations at risk are the children, women, elderly, poor communities and the immune compromised. The recent droughts and floods in Sri Lanka have highlighted the need to conduct surveillance programmes, data collection, direct actions to protect the public and build efficient communication systems.

### ***Discussion***

Health aspects have not been considered when it comes to climate negotiations as well as during disasters. It is essential when a disaster such as the Salawa incident occurs to develop a mechanism to check water, air, soil quality and monitor the health especially respiratory problems of the people. Even in disasters like floods and drought there is a need to work closely with institutes like the Disaster Management Centre and local authorities in the prevention of epidemics. With the onset of an exponential rise in the number of dengue cases we need to study further to see whether this has a relationship to change in weather patterns, disposal of garbage, awareness etc.

## **Thematic area: Eco –geo tourism**

### **Technical session 3**

#### **Presentation 1: Mr. Ravi De Silva**

##### **Title: Ecotourism**

Ecotourism targets small groups of tourists. Sri Lanka operates a diversified ecotourism industry consisting of nature, culture, adventure, Agro, spice gardens, visual arts & crafts etc. Emphasis is made in community participation and benefit sharing of resources. Green approaches are used in operations and maintenance and indigenous economies are not disturbed. Ecotourism should help conserve natural resources. Should we opt for quality or quantity?

#### **Presentation 2: Dr. Pradeep Nalaka Ranasinghe**

##### **Title: Eco – geo tourism**

Tourism that sustains or enhances the geographical character of a place- it's environment, culture, aesthetics, heritage, and the well- being of its residents. With Sri Lanka's varied topography it is an ideal destination for geo tourism. These destinations could be geo-archaeological, geo morphological, mineral enriched, geologically important, and geo technically important locations. The first geo tourist map of Sri Lanka was published in 2002 and shows 201 geo tourist locations. As in other types of tourism, there are negative sides such as the damage done to the environment, pollution, environmental degradation, over visitation etc. Whilst carrying out promotional activities, stakeholders must ensure that the environment is conserved and that the tourism is sustainable.

### ***Discussion***

What we have in Sri Lanka currently is not the real ecotourism. These are not tourists who visit locations and intermingle with the local communities so that there is benefit sharing for all. These are all prepaid package tours which leaves little revenue to the country. The need to construct large hotels is also questionable since these ruin the scenery (which the tourists come to see!), rely heavily on ground water sources and have no proper waste disposal system. And throughout the year they are mainly targeting the local tourists by providing various package deals. We need to re-think this situation. Should we go in for quality tourism as in Bhutan? Should we have visitor control? And propose to sustainably utilize what the environment has to give.

Geo tourism is a new type of tourism which needs to be promoted but, we need to have proper management plans and control by authorities before we promote these sites for tourism.

## **Outcome of the Forum**

The resource persons and participants had a lively dialogue at the Expert Dialogue Forum and raised many questions and issues. Out of what was discussed, the Ministry of Mahaweli Development & Environment incorporated into policies and action plans being developed some of the issues raised at the forum.

The Readiness Plan for the implementation of Nationally Determined Contributions incorporated activities on mitigation to sectors such as energy, transport, industry, waste and forests. These actions will be included in the work plans of the respective ministries and monitored regularly.

Green Building Guidelines have been prepared and launched and these will now be incorporated by the Urban Development Authority into their development plans.

Vulnerability Assessments are being conducted for the Coastal, Hill and other regions of Sri Lanka and relevant climate change adaptation strategies will be developed thereafter.

National Biodiversity Strategy & Action Plans have been prepared and in place and these have dealt with the aspect of sustainable tourism.

We further need to revise rules and regulations of the BOI which sometimes overlooks National Policies and regulations in the industrial, tourism and energy sectors.

The National Science Foundation is also promoting research on climate change aspects such as health and these findings would be beneficial for future actions.

Overall, even though policies, rules and regulations and legal measures are already in place, there is no monitoring mechanism in place, no integration of cross cutting areas and there is a dire need to strengthen implementation.

## Resource Person Profiles

- **Prof W.L. Sumathipala** is a Professor Emeritus of the Department of Physics, The Open University, Sri Lanka. He is the Chairman of the National Expert Committee on Climate Change Mitigation of the Ministry of Environment

He has been a former Member of the Adaptation Fund Board of the UNFCCC, Chairman of the National Science Foundation, and former Director of the National Ozone Unit & National Coordinator, Montreal Protocol Unit Ministry of Environment. He has also been the former founder Director of the Climate Change Division, and Chief Negotiator of Climate change of the Ministry of Environment.

He currently serves as the Advisor to the Ministry of Mahaweli Development & Environment on matters relating to climate change.

- **Dr. O.K. Dissanayake** was the former Director of the Sri Lanka Sustainable Energy Authority and currently works as the Chairman of the Geological Survey and Mines Bureau.
- **Dr. Terney Pradeep Kumara** is a Senior Lecturer in the University of Ruhuna specializing in Marine biology. He currently serves as the Managing Director of the Marine Environmental Protection Agency. He is a keen diver and has authored many research articles.
- **Ms. Vositha Wijenayake** is an Attorney-at Law. She has been involved in climate negotiations for many years. She is the Executive Director - SLYCAN Trust and Regional Facilitator for Asia - Southern Voices on Adaptation. She is also a journalist and a legal researcher.
- **Mr. Kapila Gunaratne** has worked at the Coast Conservation Department of Sri Lanka and was the Senior Consultant in the preparation of the Intended Nationally Determined Contributions of Sri Lanka.
- **Mr. Buddhika Hemashantha** is currently working as the CEO of the Sri Lanka Climate Fund. He has been involved in assessment of CDM projects and the assessment of mitigation projects in the energy sector. He has also worked at the UN for seven years.
- **Dr. Sunimal Jayathunga** serves as the Director of the Climate Change Secretariat of the Ministry of Mahaweli Development & Environment. He has participated in many COP negotiations and is the leader of the Sri Lankan delegation. Since the Ministry of Environment is the National Focal Point to the UNFCCC, the Climate Change Secretariat is instrumental in implementing activities under the convention such as preparation of INDCs and submission of National Communications.



- **Mr. Sena Pieris** is a mechanical engineer who has served the industry sector as an engineer for 25 years. He qualified as a Cleaner Production Expert in 1997 and is a Certified Energy Engineer, ISO 14001 and ISO 50001 consultant. His expertise is in Cleaner Production, Energy Management, Life Cycle Management, Green Procurement, Environmental Management Systems, Eco Innovation and Integrated Waste Management.
- He is the founding Director/Chief Executive Officer of National Cleaner Production Center (NCPC), Sri Lanka 2002 and served the centre for 13 and half years.
- **Mr. Harsha Wickremasinghe** is the Deputy Director General (Strategy) of the Sri Lanka Sustainable Energy Authority. He was one of the key experts who prepared the National Energy Policy and Strategies and is involved in renewable energy projects such as the Biomass Projects and Nationally Appropriate Mitigation Actions. He is also one of the pioneers of ‘Surya Sangramaya’.
- **Mr. P.G Joseph** is a Chartered Engineer and held the post of General Manager at the Energy Conservation Fund (presently known as the Sri Lanka Sustainable Energy Authority) for 3 years. He has been engaged as Director, Alternative Energy Division, Ministry of Science and Technology for 11 years. He is also an Accredited Consultant to the Sustainable Energy Authority of Sri Lanka for the preparation of applications for Renewable Energy Projects under Standardized Power Purchase Agreement. Mr. Joseph has conducted demonstrations of *Gliricidia* wood based electricity and industrial heat generation.
- **Mr. Parakrama Jayasinghe** is the past President of the Bio Energy Association of Sri Lanka. He is a Mechanical Engineer by profession and has been involved in the development of many energy related projects. He is a member of the National Expert Committee on Climate Change Mitigation.
- **Archt. Jayantha Perera** serves as a Director of the Green Building Council of Sri Lanka. He is the Work Programme Director of the Union of International Architects and a Past President of the Sri Lanka Institute of Architects. He is also a Senior Lecturer at the University of Moratuwa.
- **Prof. Sarath Kotagama** is an Emeritus Professor of the Department of Zoology from the University of Colombo. He has made a tremendous contribution towards uplifting the status of environmental education in Sri Lanka. A founder member of FOGSL he has authored many books to interest youth in nature. He has also contributed towards innovative architectural designing.
- **Prof. Ajith De Alwis** is a Professor at the Department of Chemical and Process Engineering at the University of Moratuwa. He is a member of various local and international professional bodies. Prof. Alwis is also the founding President of the Sri Lanka Biogas Association of Sri Lanka.

- **Prof. Ranjith Dissanayake** is a senior professor in Civil Engineering, University of Peradeniya. He is the Chairman of the Green Building Council of Sri Lanka and also the founding member of it. He has pioneered many projects in the establishment of sustainable built environments.
- **Archt. Piyal Silva** has worked in the Architecture, Planning and Building Industry for over 30 years. He worked previously at the Urban Development Authority of Sri Lanka and has been involved in a number of development projects in the Greater Colombo area.
- **Dr. A.G. Thusitha Sugathapala** serves as a Senior Lecturer at the University of Moratuwa and is also the Director of The Enterprise-Center for Innovation, Incubation and Entrepreneurship, University of Moratuwa. He also served as the Director General of the Sri Lanka Sustainable Energy Authority (SLSEA). He is involved in many mitigation projects in the energy sector. He was the key consultant in the preparation of a Readiness Plan for the Transport Sector in the implementation of the Intended Nationally determined Contributions.
- **Dr. Dimantha De Silva** is a Senior Lecturer at Department of Civil Engineering at University of Moratuwa, Sri Lanka. He completed his PhD in Transportation Engineering from University of Calgary, Canada. He has over 14 years of transportation engineering experience in Sri Lanka, Canada and in USA. From 2006 to 2014 he worked as a Transportation Engineer in Canada, developing activity based transport demand models, spatial economic land use models for policy testing in macro and micro policy planning. In 2014 he has returned back to Sri Lanka to join the University of Moratuwa. He is a Consultant to the Western Region Megapolis Planning Project and was the team leader for the Transport Sub Committee that developed the Transport Master Plan for the Western Region Megapolis Development.
- **Prof. Saman Bandara** is a professor in Civil Engineering, University of Moratuwa. Graduated from University of Moratuwa as a Civil Engineer and obtained Ph.D. in Transportation Engineering with specialization in Airport Planning from The University of Calgary, Canada. He has over 33 years of experience in teaching and research. At present he is serving as the Head, Department of Civil Engineering. Prof. Bandara is a Chartered Engineer and a Fellow of the Chartered Institute of Logistic & Transport, Sri Lanka and a member of Sri Lanka Evaluation Association. He was the past Chairman of the Road Development Authority, past Chairman of the Chartered Institute of Logistic & Transport, Sri Lanka.
- **Dr. Don Jayaweera** served as a former Secretary to the Ministry of transport. He was the Executive Director of the National Council for Economic Development. He is a Consultant to the Strategic Enterprise Management Agency.

- **Prof. Jinadasa Katupotha** is an Emeritus Professor at the Department of Geography, University of Sri Jayewardenepura, Sri Lanka. His studies and research are mainly on “Geomorphology” with emphasis on sea level changes, Quaternary Research, Environmental Studies, coastal zone management and planning. He has many research papers to his credit.
- **Dr. Upul Premaratne** is a Senior Lecturer at the Department of Oceanography and Marine Geology in the University of Ruhuna. He has an Msc degree from the Norwegian University of Science and Technology. He was part of the team that developed a policy for upstream petroleum industry in Sri Lanka.
- **Dr. Nalaka Ranasinghe** has a PhD in Applied Geology from the University of Kent. He has worked at the Geological Survey and Mines Bureau and is currently serving as a Senior Lecturer at the Department of Oceanography and Marine Geology at the University of Ruhuna. Besides geology he has a passion for archaeology and zoology.
- **Dr. Enoka Suraweera** is a Consultant Community Physician at the Environmental and Occupational Health Directorate at the Ministry of Health and Indigenous Medicine. She has been actively involved in the preparation of the Intended Nationally Determined Contributions, National Adaptation Plan, Technical Needs Assessment among many others.
- **Prof. Hemanthi Ranasinghe** is a senior lecturer of the University of Sri Jayewardenepura. She has more than 27 years of experience as a lecturer/trainer, researcher, consultant and environmental advocate. She has served in many research and development councils. Some of them where her contribution was most prominent were Institute of Environmental Professionals (IEPSL), Institute of Biology, Lanka Association for Sustainability, Sri Lanka Resources Centre for Indigenous Knowledge where she held the post of Chairperson/President/Director.
- **Dr. H. Manthrithilake** serves as a Senior Researcher and Head of the research program of International Water Management Institute (IWMI) in Sri Lanka, called “Sustainable Development Initiative”. He was the Director of several divisions of the Mahaweli Authority of Sri Lanka (MASL). Dr. Manthrithilake was successful in establishing and managing a profit- making consultancy (private) company ‘Natural Resources Management Services Pvt. (Ltd) – NRMS’ for the MASL and served as its first Chairman cum Managing Director.
- **Prof. Saroj Jayasinghe** is a professor of medicine at the University of Colombo and is an honorary consultant physician at the National Hospital. He has conducted many research programmes on urban poverty and health.

- **Dr. Erandathie Lokupitiya** has a Ph.D. in Ecology, focusing on climate change, greenhouse gas inventorying, and carbon cycle research. She obtained her Ph.D. from Colorado State University (CSU), USA, and served as a Research Scientist at the Department of Atmospheric Science of the same university for about four years, until she returned to Sri Lanka in 2011. She prepared the national greenhouse gas inventory for the Agriculture, and Land use, Land use change, & Forestry (LULUCF) sectors in Sri Lanka, which was included in the Second National Communication submitted by the Ministry of Environment of Sri Lanka to the UNFCCC. Currently Dr. Lokupitiya is serving as a Senior Lecturer at the Department of Zoology and Environmental Sciences of University of Colombo.
- **Prof. Mathilal de Silva** is an Attorney-at-Law and former Senior Lecturer of the University of Sri Jayawardenapura.
- **Mr. Ravi de Silva** is a consultant in Environmental Management and Conservation. He is a Civil Engineer by Profession and acted as the Environmental Management Representative in obtaining the Green Globe 21 Standard Certification for Kandalama Hotel. He is presently the consultant for Social and Environmental Management at Aitken Spence Hotels and Coordinator of CSR activities and reporting.
- **Ms. Rajini De Silva Mendis** is the Chairperson of “Ebert Silva Holidays”. She is a Chartered Architect by Profession. Ebert Silva is a pioneering travel and tourism company which is synonymous with travel. Ms Silva provides innovative tours such as the “Colombo City Tour” which is a great attraction among tourists.
- **Mr. Ranil Nanayakkara** was the head of eco, nature and sustainability section of Aitken Spence Travels. He is a researcher on lesser known species such as bats and spiders. Currently, he has set up his own travel company on ecotourism.