South Asia Co-operative Environment Programme (SACEP)



'Soba Sankalpana'

School Environment Awareness Programme 2007



and

Panel Discussion on 'Adaptation Strategies to Sea Level Rise in South Asia'

> 16th July 2007 Report











H E Mr Mahanth Thakhur, Chairman SACEP and Minister of Environment, Science and Technology, Government of Nepal being welcomed by Dr Arvind Boaz, Director General, SACEP.



Mr Laxman Prasad Mainali, Secretary, Ministry of Environment, Science and Technology and focal point of SACEP, Government of Nepal, addressing the prize distribution ceremony of the School Awareness Programme



Mr Arjan Rajasuriya, Research Officer, Marine Biological Resource Division, NARA participating in the Panel Discussion



Dr R Gopichandran, Programme Director, Environment Management, CEE India, participating in the Panel Discussion



Panelists present at the Discussion



Guests and Invitees

South Asia Co-operative Environment Programme (SACEP)

'Soba Sankalpana'

School Environment Awareness Programme 2007 (Essay, Painting, Poster and Photographic competitions)

and

Panel Discussion on 'Adaptation to Sea Level Rise in South Asia'

July 2007

Report









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PREFACE

The latest report by the Intergovernmental Panel on Climate Change (IPCC) warns that climate change is expected to result in a large number of (mostly negative) effects including increasing average temperatures, rising sea levels, an increased intensity of storms, a greater frequency of heat waves, floods and droughts, and a more rapid spread of disease, and loss of biodiversity. It is expected that countries of South Asia will be subject to all these effects, although their significance will vary from country to country according to their specific circumstances.

Rising sea levels, especially when accompanied by increased storm surge, are a major threat to many countries in South Asia. Despite the expected significant impacts of sealevel rise in South Asia, no countries of the region have undertaken the design of national adaptation strategies aimed at minimizing the economic losses associated with a rising sea.

This programme was conducted to respond to this situation, in collaboration with the Centre for Environment Education (CEE), Ministry of Education and Ministry of Environment and Natural Resources, Government of Sri Lanka and with the assistance of South Asia Youth Network (SAYEN). The main objectives were to increase awareness among the community with special attention to school children. More environmental education programmes will be developed and conducted within the region, in collaboration with partners to raise awareness among it school children on issues of concern in the field of Environment in this region.

Dr A A Boaz Director General

WELCOME ADDRESS AT THE PANEL DISCUSSION BY DR. ARVIND BOAZ, DIRECTOR GENERAL, SACEP

- Hon. Mr. Mahanth Thakur, Minister of Environment, Science and Technology, Government of Nepal and present Chairman of the SACEP Governing Council.
- Mr. Laxman Prasad Mainali, Secretary to the Ministry of Environment, Science and Technology, Government of Nepal.
- Visiting delegation from the Ministry of Environment, Science and Technology, Government of Nepal
- Mr Gopichandran, from CEE, India,
- Prof. Kotagama and other distinguished Panel Members
- Other distinguished participants

It gives me great pleasure as the Director General of SACEP to welcome everybody to this Panel Discussion on the "Adaptation Strategies to Sea Level Rise in South Asia" We are indeed very fortunate and honoured that we have with us on this occasion the present Chairman of the SACEP Governing Council Hon Mahanth Thakur - Minister, Environment, Science and Technology, Government of Nepal who is on an official visit to SACEP along with his key Ministry Officials. On behalf of SACEP, let me extend a warm welcome to you Your Excellency and your delegation. I trust you will have a pleasant stay in Sri Lanka.

Recent reports have indicated that the potential impacts of sea-level rise are great and unevenly distributed across the globe. Many regions exhibit high exposure to the primary impacts of Sea Level Rise, namely inundation and accelerated erosion, and to secondary impacts such as increased storm and flood risk.

Recent Studies have also examined exposure to Sea Level Rise of up to 20 m, a high but plausible value that may be realised within 1000 years in the absence of dramatic and immediate action to reduce greenhouse gas emissions.

A large number of low-elevation "hot-spots" is evident on the global 20m exposure maps. However, perhaps the region of most concern is South and East Asia, where exposure is extremely high in terms of both area and population: nine heavily populated major deltas are threatened. Inundation (whether permanent or temporary) will be augmented by erosion, whose role may be of greater relative importance for smaller and slower increases in sea-level.

Erosion will be offset by sediment transport, which in turn will depend on factors such as river management, the existence and extent of upstream coastal defenses, and climate change impacts on fluvial processes and runoff. All this is disturbing news and that is why the member countries of SACEP at its 9th Governing Council Meeting in Kathmandu included in its work programme the important aspect of Adaptation to Climate Change. Based on this SACEP conducted a Scoping Exercise on the Adaptation to Climate Change whose findings were presented at the 10th Governing Council that approved them and directed the Director General to develop projects on the recommendations of the Scoping exercise

The Panel discussion today is 1st in a series of initiatives which will examine many related issues on this subject and SACEP has been able to bring together a distinguished group of experts in Sri Lanka to serve on this Panel of Experts. On behalf of SACEP, I wish to thank them individually for sparing their valuable time to be here with us today.

I also wish to place on record the hard work and dedication of my staff for having put together this programme activity. My thanks go in particular to Nelum Wickramasinghe and Madhuri Pieres who have worked day and Night to make this programme a reality. I also extend my gratitude to CEE for being our partners.

I am confident that there will be a fruitful discussion on this subject and that with these findings; SACEP will be able to come up with initiatives and strategies which will serve the region.

Thank you Dr Arvind Boaz Director General

REPORT ON THE PANEL DISCUSSION ON "ADAPTATION STRATEGIES TO SEA LEVEL RISE IN SOUTH ASIA" MONDAY JULY 16TH, 2007 MAHAWELI CENTER AUDITORIUM

Panel Members

Moderator - Prof. Sarath Kotagama, Department of Zoology, University of Colombo

- 1. Dr. B.R.S.B. Basnayake (Meteorologist in charge, Centre for Climate Change Studies, Department of Meteorology)
- 2. Mr. Arjan Rajasuriya (Research Officer, Marine Biological resource Division, National Aquatic Resources Research and Development Agency (NARA)
- 3. Dr. E.M.S. Wijeratne (Research Officer, Oceanography Division National Aquatic Resources Research and Development Agency (NARA)
- Dr. Mala Amarasinghe (Senior Lecturer, Department of Botany, University of Kelaniya)
- Dr. R. Gopichandran (Programme Director, Environment Management, Centre for Environment Education (CEE) India).
- Dr. A.A. Boaz, Director General of SACEP, welcomed the all the honourable guests, and delegates from Nepal, distinguished panel members, school children, and other invitees on behalf of the organizing committee. He also highlighted that this discussion is the first of a series of initiatives SACEP on Adaptation to Sea Level Rise.
- Hon. Mr. Mahanth Thakhur, Minister of Environment, Science and Technology, Government of Nepal addressed the gathering, highlighting the importance of such programmes.

Prof. Sarath Kotagama, *Department of Zoology, University of Colombo*, commenced by introducing the panel members, and highlighting the sub themes they would elaborate on. He made a preface to the video presentation on the global picture of sea level rise, stressing on the importance of being aware of the current trends of Sea Level rising.

Introductory Session

Dr. B.R.S.B. Basnayake briefed the audience on the main causes of global warming and regional sea level rise. At the very outset he defined Climate Change as a, statistically significant change of climate in a long time scale.

He brought out some statistical data from the assessment reports published by the IPCC (Inter-governmental Panel on Climate Change) which was established in 1987 by the world meteorological organization and United Nations Environment Programme (UNEP).

 According to the latest assessment report (3rd Assessment Report, 2001), the global sea level has risen by about 10-25cm. The 4th Assessment Report, 2007, which is going to be released, it is 17cm.

- During the last 20th century temperature has increased by 0.6 degrees globally. It has impacted on most of the sectors, agriculture, water resources and resources as well. For South Asia it would be around 0.5 degrees.
- In Nuwaraeliya temperature has risen by 2 degrees and Spatial Average for Sri Lanka is 0.6 which tally with the global situation.

He also explained that,

- Climate is changing naturally due to natural causes which occurs through out a
 quite long time and the mechanism is slow and is accelerated due to anthropogenic
 activities. Emmission of Green house gases such as Carbon Dioxide, Methane,
 Nitrous Oxide, (natural green house gases) CFC (Chloro Fluoro Carbon),
 Sulfasexafluoride, and Ozone (industrial gases).
- Green house gases has risen in the atmosphere in the past specially after the industrial revolution. In the present industrial era the Carbon Dioxide concentration has risen from 265ppm to 379pmm which is a 30% increase.
- When more and more greenhouse gases are released to the atmosphere the heat traps which results in the increase temperature. As a consequence ice caps and glaciers melt. Due to this cenario, the sea level rises and according to the 4th Assessment Report of IPCC, during 1960-2003, sea level has risen at a rate of 1.8mm per year, and during 1993-2003, it has become 2.8mm per year.
- Thermal expansion of water is contributing 50% of the total rise of sea level.
- The regional increase in sea level rise is dependent on climate variability at a shorter time scale. Phenomena like Elnino and Lanino has given some inputs to regional sea level rise.
- The highest increase in sea level rise has shown in Eastern Indian Ocean and Western Pacific Ocean.

Mr. Arjan Rajasuriya stated that,

- Increase of rainfall, decrease of sedimentation, increase of fresh water input, storm surges and the inundation of islands (two islands at north of kalpitiya) has occurred due to climate change and sea level rise.
- Temperature increase in 1998 killed lot of coral reefs particularly in South Asia region.
- In Sri Lanka there were reef die offs in large scale. When dominant coral forms
 die off something else takes over. As a result the whole ecosystem changes,
 things dependant on corals and associated food cycles also begin to get affected.
 Some species may die off, and only a few strugglers will remain. Some of the
 predators may increase which would cause die offs of something else.
- Biggest impacts have been on the habitats, more than individual species habitat changes will change individuals more, which would result in bleaching, loss of corals and loss of biodiversity.
- Some reefs have begin to recover, those which are not close to human settlements, which are close don't recover very well because there is so much impact from human, and other human related activities such as tourism and sewage disposal.
- Not only corals other habitats like lime stone, rock habitats, and platform reefs are also seriously affected by climate change.

- Several monitoring programmes are being established and the global link to all these monitoring programmes is the Global Coral Reef Monitoring Network. The International Coral Reef Action Network (ICRAN) has also been established to inform the global community and tyring to take appropriate actions to minimize human impacts on coral reefs.
- Tsunami also had impacts on coral reefs, particularly in the east coast of Sri Lanka.

Dr. Mala Amarasinghe mentioned that,

- Sea level rise is something that affect very seriously on living beings taking tsunami as an example.
- The coast, which is the area between land and sea is very significant with special characteristics. More than 70% of the human population live in the coast.
 - All the unique features in the coast is definitely going to get affected by sea level rise, especially the habitats.
 - At the same time sea level rise is rensposible in loosing habitats, it may create new habitats too.
 - Among the different habitat types, mangroves are unique. They can survivie harsh conditions, but when sea level goes up, the energy and currents increase, they might loose their tendency to withstand and may be destroyed.

Dr. E.M.S. Wijeratne made a presentation (Annex - 1)on Sea Level Changes and mentioned, that there are no data for sea level rise around Sri Lanka. He also explained the,

- Main forces for sea level changes as, astronomical, meterological and hydrological.
- Sea level rise is measured in coastal stations. In Sri Lanka, NARA maintains 3 sea level monitoring stations located in Colomobo, Kirinda and Trincomalee, where it is measured by the variation of water pressure.
- Average sea lvel rises and the predictions for the future. According to it, the global sea lvel is 3mm per year.
- Regional wise there are no available data.

Dr. R. Gopichandran, mentioned that SACEP and CEE are trying to bring scienctists together and initiate some activities on adaptation to sea level rise.

Discussion

A student from Vishaka Vidyalaya, questioned on the reason for the unavaialability of methods to measure sea level rise, although science and technology is very developed. Dr. Wijeratne answered, that it is due to the lack of past data and records. And it is changed from place to place. Prof. Kotagama added and mentioned that a relative sea level rise is expressed because of these changes.

Mr. Asheem Kumar Shrivastav (TRAFFIC International), that to make the pedictions data is needed and to gather the relevant data satellite images should be used. Highly sophisticated and expensive equipment are required, where only developed countires have them.

Dr. Boaz explained that this initiative of SACEP is aimed at children and the little things that children can do will help in adapting to sea level rise. SACEP in future will promotional materials and send to schools which may include small initiatives that the children can practice in daily life and make it a habit. Community level and home level participation is very important in devloping the adaptive capacity of coastal community to face the sea level rise. Although scientists are at the higher level, children and the community are the ones who could initiate and practice adaptation and preventive measures and that is SACEP is trying to implement.

Wrap-up session

Prof. kotagama thanked all the panel members, and finally mentioned that, whether we like it or not we have to bear the losses, which is the first adaptive strategy. The second is to share the losses and the third to modify the threats.

He also requested the audience to gain more knowledge and help prevent the impacts.

RECOMMENDATIONS

- Adaptation measures should be improved by,
 - o Raising awareness of adaptation
 - Develop and share materials to increase understanding of adaptation
 - Establish and maintain key partnerships to raise awareness of impacts and adaptation
 - Develop key national messages and communication materials that incorporate theses messages
 - Develop and share outreach strategies and include information on impacts and adaptation in existing climate change initiatives
 - o Facilitating and strengthening capacity for coordinated action on adaptation
 - Develop and maintain capacity for coordinated action and sharing information
 - Promote collaboration on adaptation
 - o Incorporating adaptation into policy and operations
 - Identify or develop procedures to review existing vulnerability to sea level rise, and whether climate change would increase or decrease existing vulnerability
 - Develop a compendium of approaches
 - o Promoting and coordinating research on impacts and adaptation
 - o Supporting knowledge-sharing networks
- Mainstreaming adaptation to sea level rise into policies and programmes in different sectors vulnerable to climate change impacts and need to include such potential impacts in their sectoral design and investments.
- Development of eco-specific adaptive knowledge on adaptation to climate variability and sea level rise to enhance adaptive capacity for future climate change and sea level rise.

INTRODUCTORY REMARKS BY DR. ARVIND BOAZ, DIRECTOR GENERAL, SACEP

- Hon. Mr. Mahanth Thakur, Minister of Environment, Science and Technology, Government of Nepal and present Chairman of the SACEP Governing Council.
- Mr. Udaya Gammanpila, Chairman Central Environmental Authority. Sri Lanka and Chief Guest
- Mr. Laxman Prasad Mainali, Secretary to the Ministry of Environment, Science and Technology, Government of Nepal.
- Visiting delegation from the Ministry of Environment, Science and Technology, Government of Nepal
- Mr Gopichandran, from CEE, India,
- Other distinguished participants

It gives me great pleasure as the Director General of SACEP to welcome everybody to this Awards Ceremony in connection with "Soba Sankalpana" – The School Environmental Competition on the theme "Adaptation to Climate Change and Waste Management".

SACEP's in its 25 year history of work has been working extensively on the subject areas such as Environmental Education, Climate Change, Waste Management and have targeted the younger generation, which is our most precious resource.

As a part of our 25th Year Celebrations, we thought it fit to conduct a series of Children's Environmental Education Competitions (essays, paintings, posters and photographs).

The objective of this event was to enable students to understand these issues and carry the message to the larger community by making them realize the importance of their small efforts in these crucial issues that are directly concerned with the very survival of Mankind. The whole idea was to use this large student community to act as harbingers of change for the society as a whole.

The three winning entries of each category will receive the gold, silver and bronze and a certificate and all the participants will also receive a certificate. As an added incentive a representative of the best school will be awarded with a scholarship to attend in the 4th International Conference on Environmental Education, which will be held in November 2007, in India.

Climate change is a global issue which is the cause for many other environmental problems such as sea level rising, biodiversity depletion, change of crop patterns etc. As you all know Adaptation to Climate Change is a priority issue in SACEP'South Asia Cooperative Environment Programme Work Programme and we have initiated several programmes to address this issue Waste Management is also one of the major challenges Asian countries facing today, with increasing waste generation, and changing composition of the waste stream. Many Developing countries are still in the transition towards better waste management but they currently have insufficient collection and improper disposal of wastes. However, in many countries the final disposal of Solid waste is predominantly open dumping leading to increasing environment degradation and growing health problems. Therefore we need clear government policies and competent bureaucracies for management of solid wastes urgently especially in countries like ours where there is rapid population growth through urbanization into peri-urban areas.

I am very pleased to bring it to the notice of all those who are present today, that the response from the children and the schools to this competition was over whelming. We had a flood of high quality entries and the competition was very stiff and the judges had an onerous task of selecting the winners.

The School competition was carried out under four main categories and we invited the schools within Colombo Municipal area to participate in this programme. We had an overwhelming response and 31 schools participated in this with 3522 entries. Out of all 3522 entries, Children from 17 schools were able to win awards under many categories. I am thankful to the principals and the teachers of these schools for helping us conduct this programme and my thanks go especially to all the students who participated and made this programme a grand success.

I am thankful to the country government of Sri Lanka who has always played a most proactive role in the implementation of various programmes by SACEP. I am also particularly thankful to the Ministry of Environment and Natural Resources for their keen interest in this project and I am confident that under their able guidance and support we will be able to consolidate these kinds of programmes in the future.

I wish to extend my thanks to our collaborators the CEE, India for helping us in this event. I am also thankful to Standard Charted bank who have been kind enough to sponsor the prizes & to SAYEN for sponsoring the best school award.

I am particularly indebted to my staff at SACEP who have worked day and night for this programme especially Nelum, Madhuri, Ratnadeera and Jayawardhane.

I am particularly thankful to the officials of the Ministry of Environment and Natural Resources, CEE Sri Lanka and South Asia Youth Environment Network for their assistance in this competition.

In conclusion, I will like to express SACEP's firm commitment to undertake activities of a similar nature in the years to come.

Thank you Dr Arvind Boaz Director General

ADDRESS BY H.E. MR. MAHANTH THAKUR, MINISTER OF ENVIRONMENT, SCIENCE AND TECHNOLOGY, GOVERNMENT OF NEPAL

It gives me great pleasure as Chairman of the SACEP Governing Council to be present on this important occasion in the calendar of SACEP's activities where we are here today to recognise the talents of our younger generation to whom we owe this planet.

Many of you may be aware that SACEP is an Intergovernmental Organisation, the first to be established in this region to deal exclusively with the environmental concerns of its member countries which comprise of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan & Sri Lanka.

Environmental Education is one of 14 priority areas of SACEP and has been made aware that the main theme of the competition is *Adaptation to Climate Change and Waste Management* and the competitions are carried out under 4 main categories concentrating on Our beach, Keep our beaches clean, Sea Erosion and melting Ice – Losing Lives.

Climate change is a global issue which is the cause for many other environmental problems such as sea level rising, bio diversity depletion, change of crop patterns etc.

SACEP since its formation has been concentrating in the education of the youth through its Subject Area Focal Point, namely the Centre for Environment Education (CEE), Ahmedabad. Previously CEE has collaborated with SACEP in the publication of 4 Books on Environment catering to children in the age group 5 - 16. CEE has also assisted SACEP and UNEP in developing Environmental Education Action Plan and here once again they have collaborated with SACEP in organising a series of Children's Environmental Education Competitions (essays, paintings, posters and photographs),

Dr. Boaz, Director General SACEP has informed me that there had been a tremendous response from the Schools and the quality of entries were of a very high standard. The Judges had great difficulty in selecting the winners. I wish to congratulate the winners and also to the others who were not so fortunate.

In keeping with SACEP's policy of recognizing the talents of the younger generation, they are hoping to make this an annual feature.

There will also a valuable reward for a winner of the best school will be awarded with a scholarship to attend in the 4th International Conference on Environmental Education, which will be held in November 2007, in India. This award has been sponsored by SAYEN (South Asia Youth Environment Network) and I am thankful to them for making this competition more attractive

As Chairman of SACEP Governing Council, 1 will extend my fullest support to ensure that during my tenure not only the objectives of SACEP are met but SACEP embarks on a path of dynamism and growth for the benefit of its member countries.

Thank you Mahanth Thakur Minister of Environment, Science and Technology, Government of Nepal

ADDRESS BY MR. LAXMAN PRASAD MAINALI SECRETARY, MINISTRY OF ENVIRONMENT, SCIENCE AND TECHNOLOGY, GOVERNMENT OF NEPAL

It is indeed a great honour for me to be present at this Panel Discussion on the "Adaptation Strategies to Sea Level Rise in South Asia" organised by South Asia Co-operative Environment Programme of which Nepal is the Current Chair of its Governing Council of Minister.

Many of you may be aware that SACEP is an Intergovernmental Organisation, the first to be established in this region to deal exclusively with the environmental concerns of its member countries which comprise of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

At the recently concluded 10th Governing Council Meeting of SACEP in Kathmandu in January 2007 under the adoption of its work programme for 2007 – 2008, among other programme matters such as Waste Management, Data and Information Management. Adaptation to Climate Change was given high priority. I have been made to understand that a Regional Scoping Exercise for adaptation to Climate Change was very successfully carried out recently in Colombo.

Adaptation Strategies to Sea Level Rise is a much discussed topic in many parts of the world and there is considerable debate. This is a very relevant issue for South Asia. Thus it is opportune that SACEP has thought it fit to discuss this topic at this point of time and looking at today's programme I find the topics being presented and discussed by an eminent panel extremely important.

This panel discussion has three basic components, namely Causes of Sea Level Rise, Adaptation Strategies to Sea Level Rise and Future Actions that could be taken.

It is noted that under these 3 main sub headings, many topical issues are being discussed and they are as follows:

- Regional oceanic changes which cause sea level rise,
- Adaptation to immediate impacts of sea level rise on ocean and coastal resources, Adaptation to impacts of sea level rise on the coastal line infrastructure and coastal communities
- Adaptation to impacts of sea level rise on coastal habitat biodiversity
- Adaptation to impacts of sea level rise on fresh water resources along the Coast line
- Government Initiatives on Adaptation Strategies &
- Future Actions of SACEP

I also find that the audience today covers a wide range institutions such as Ministries, Authorities, Departments etc.), International Environmental Organisations, Environmental NGO's, Universities, Other institutions, and also school children. All of them are important players in the overall programme and will have to play a pivotal role.

I wish this panel discussion the very best and trust the outcome of these deliberations will be made known to the other member countries of SACEP

Thank you,

Mr Laxman Prasad Mainali

Secretary, Ministry of Environment, Science and Technology, Government of Nepal

REPORT ON THE 'Soba Sankalpana' school environment awareness programme January – July 2007

South Asia Cooperative Environment Programme (SACEP), in collaboration with the Centre for Environment Education (CEE), Ministry of Education and Ministry of Environment and Natural Resources, Government of Sri Lanka and with the assistance of South Asia Youth Network (SAYEN), organized a series of School Competitions (Essay, Drawing and Painting, Poster and Photography) from January to July 2007. The main theme was *Adaptation to Climate Change and Waste Management*. The competitions were carried out under four main age categories, each having separate sub themes. These competitions were carried out entitled to set of guidelines (Annex – 2). Priority was given to the students who expressed the links of the respective sub themes with the main theme "*Adaptation to Climate Change and Waste Management*". Competitions were intended to carry out only in English and Sinhala medium, but with regard to the request made by Tamil and Muslim schools, Tamil medium entries were also accepted.

A total of 145 schools in the Colombo zone were invited to participate in the competitions, which included Government, Semi-government, Private and International schools. The deadline for the submission of entries was 29^{th} of June and a total of 3522 entries were submitted from 35 schools (Annex – 3). The highest participation was from the Muslim Ladies College. As a whole, the highest number of entries was for the Drawing competition and the lowest for the Photography competition.

First, Second and Third places were intended to be selected for each competition for each age category, which would total to 45 winners. Due to lack of qualified entries for the Essay Competition-Sinhala medium, Age category Grade 12-13, Essay Competition-Tamil medium, Age category Grade 12-13, and Photography Competition, only number of 38 winners were selected to be awarded (Annex – 4 and 5) by a well qualified panel of judgers (Annex – 6).

Best School Award

Taking into consideration the total winning entries and the environmental related activities carried out in the school, the best school was selected to award a representative from the school with a scholarship to attend in the 4th International Conference on Environmental Education which will be held in November 2007, in India. **Vishaka Vidyalaya**, Colombo 04, was selected for the Best School Award.

All the participants were also presented with a certificate of participation.

AWARDS CEREMONY - MONDAY JULY 16TH, 2007 MAHAWELI CENTER AUDITORIUM

Dr. A.A. Boaz, Director General of SACEP welcomed the Chief Guest for the occasion, Hon. Mr. Mahanth Thakhur, Minister of Environment, Science and Technology, Government of Nepal, Mr. Laxman Prasad Mainali, Secretary, Ministry of Environment, Science and Technology, Government of Nepal and the Chairman for the programme, Mr. Udaya Gammanpila Chairman, Central Environmental Authority (CEA) Sri Lanka.

Introductory remarks were made by Dr. A.A. Boaz, on behalf of the organizing committee and highlighted the significance of such programmes. This was followed by short addresses made by Hon. Mr. Mahanth Thakhur, Mr. Laxman Prasad Mainali, Dr. R. Gopichandran, Programme Director, Environment Management, Centre for Environment Education (CEE) India and Mr. Udaya Gammanpila Chairman, Central Environmental Authority (CEA) Sri Lanka.

38 students from 17 winning schools were awarded with a Medal (Gold/Silver/Bronze) and a Certificate (Annex – 8, 9 and 10), by the Chief Guest Hon. Mr. Mahanth Thakhur. Dr. A.A. Boaz announced Vishaka Vidyalaya, Colombo 07 as the best school with the reasons for the selection. A student from Vishaka Vidyalaya accepted the letter of award presented for the school.

Ms. Nelum Wickramasinghe, Junior Programme Officer of SACEP delivered the vote of thanks to all concerned.

POSTER AND PAINTING EXHIBITION - MONDAY JULY 16TH, 2007 MAHAWELI CENTER EXHIBITION HALL

All the winning entries and 150 selected posters and drawings were exhibited, and the exhibition was opened by Hon. Mr. Mahanth Thakhur, Minister of Environment, Science and Technology, Government of Nepal.

The honourable minister and other delegates were expressing their views on the drawings and paintings of the children, that the drawings are excellent and the students are very talented.

PRESENTATION ON SEA LEVEL CHANGES BY DR E.M.S. WIJERATNE RESEARCH OFFICER, OCEANOGRAPHY DIVISION, NARA.





Forcing Agents

 The sea level variation is associated with many kinds of motions in the sea caused by astronomical forcing, meteorological and hydrological forcing.

*Sea surface is also respond to short -term diurnal, seasonal and inter -annual changes, but it also responds to changes in freshwater inflow, heat flux and other factors that are linked to climate change processes. •Tide can be clearly noticed as a regular rise and fall of sea level and occurs virtually everywhere throughout the occan.

 Wind stress and air pressure variations force sea level variations on time scales ranging from very shorts to daily and seasonal. In the open sea, a change of air pressure by 1 mb causes about a 1 cm change in sea level.

 Usually, sea level changes related to density (i.e. variation of specific volume due to change of temperature and salinity) are seasonal and caused by seasonal changes in precipitation, evaporation and heat fluxes. Such variations are referred to steric height variability (Tomczak and Godfrey, 1994).

In addition, the El-Niño Southern Oscillation (ENSO) causes climate changes around the world, which often have a large impact on the sea level. This ENSO takes place on a 2-5 year interval in the tropical Pacific Ocean.























Seasonal sea level variation in around Sri Lanka Waters, Red: Trincomalee, Blue: Colombo

S=Salinity, T=Temperature, H=Mixed Layer Depth

 $\nabla h_{t}{=}{-}\alpha \nabla T H \quad \beta{=}0.8{\times}10^{-3}, \quad \alpha{=}3{\times}10^{-4}$

Bay of

Fundy



0.35

0.3 0.25 0.2 0.15 0.1 2005

∇h,=β∇S.H



























AGENDA

)BA SANKALPANA'-SCHOOL ENVIRONMENT AWARENESS PROGRAMME AND

NEL DISCUSSION ON 'ADAPTATION STRATEGIES TO SEA LEVEL RISE IN SOUTH ASIA'

IAHAWELI CENTER AUDITORIUM, GAMINI DISSANAYAKE MEMORIAL HALL, 96, ANANADA KUMARASWAMY MAWATHTA, COLOMBO 07 16TH JULY 2007

Opening	
12.45 PM - 12.50PM	Arrival of Guests
12.50 PM - 01.00PM	 Welcome Lighting of Traditional Oil Lamp National Anthem
01.00PM - 01.05PM	Welcome address by Director General of SACEP, Dr. A. A. Boaz
Session 1 - Panel disc	ussion
01.05PM - 01.25PM	Video presentation on Sea Level Rise - The global picture
01.25PM - 01.35PM	Causes of regional sea level rise
01.35PM - 02.05PM	Adaptation strategies to sea level rise
02.05PM - 02.20PM	Future actions
02.20PM - 02.55PM	Wrap-up session
Session 2 - Awards c	eremony
02.55PM - 03.00PM	Introductory Remarks by Director General of SACEP, Dr. Arvind Boaz
03.00PM - 03.05PM	Address by Minister of Environment, Science and Technology, Govt. of Nepal, Hon. Mr. Mahanth Thakur
03.05PM - 03.10PM	Address by Secretary, Ministry of Environment, Science and Technology, Govt. of Nepal, Mr. Laxman Prasad Mainali
03.10PM - 03.15PM	Address by Mr. Gopichandran, Centre for Environment Education, India
03.15PM - 03.30PM	Address by Mr Udaya Gammanpila, Chairman, Central Environmental Authority Sri Lanka.
03.30PM - 04.10PM	Awards Ceremony SAYEN Award for the best participatory school
04.10PM - 04.15PM	Vote of Thanks
04.15PM	Opening of the exhibition and Tea

Annex - 3	ie of the Competition (see	udging Panel is final and no be entered into regarding not be returned. All entries	perty and copyright of the le organizers will not accept lage to any work submitted.	ay be used in publicity petition may not be changed rictly be applied.	Title Medium, Size and Restrictions	ach Any traditional sach medium/techni	eep our pencil, ink, taches watercolours, san cravon, pastel.	ea oil paint, osion charcoal etc.) may be used.	elting e- ising Your painting les should be	restricted in size to a 'bristle board' (dimension 64cm x 51cm).	ve the creator's name, to of the school and the the a brief description on ter up to two pieces of	
	ciosing dat below).	decision of the J spondence will decision.	remain the prop EP and CEE. Th ity for loss or dam	ing artwork m baigns. rules of the Com odified and will st competition	Grade	Grade III - OI Grade V Be	Grade VI - Ke Grade VIII be	Grade IX - Se Grade XI Er	Grade XII Me - Grade Ice XIII Lo		h title, address at the back wit k. You may enf	
		4. The corre that (will SAC liabili	6. Winn camp 7. The or mu	Category	A	۵	U	۵		Every paint date of birtl year / grade your artwor	artwork.
		South Asia Cooperative Environment Programme (SAC) in collaboration with the Centre for Environment Educal (CEE) has organized a series of Children's Environme Education Commentions Jessave painting profess	photographs). The main theme of the competition Adaptation to Climate Change and Waste Managem	The competitions are carried out more 4 main category The three winning entries of each category will receive prize and a certificate. (Priority will be participants will a receive a certificate. (Priority will be given to the stude who express the links of the respective topics with the m theme "climate change"). A representative nominated the principal, of the best school will be awarded wit	scriotarsmip to attend in the + international conterer on Environmental Education, which will be held November 2007, in India.	dimate change is a ground issue which cause for more other environmental problems such as sea level rising, diversity depletion, change of crop patterns etc. The m	objective of this school event is to enable students understand these issues and reflect their ideas. Ple send all the entries to the SACEP secretariatly Friday.	organizers will come and collect the entries where a for request is made by the school. Entries received after date will not be ordered to the indexet	date will not be submitted to the judges. Guidelines	 The student must be in Grade III-XIII by 2007. The relevant themes must be selected accord to the category. You should write the following information cle on the back of each entry: on the back of each entry. 	 address and home telephone numbe Title of entry and brief description of meaning of the artwork. 	classe action and and unaided with being original and unaided with
	"Soba Sankalpana"	l Environmental Education Competitions	laptation to Climate Change and aste Management				Jointly Organised by	Cooperative Environment Programme (SACEP)	or Environment Education (CEE)	operative Centre for Environment ogramme Education (CE) n Road, S9771, - 5 Senanayake Mawatha, a Nawala,	acep.org E-mail: cee@ceesrilanka.org	
		Schoo	Theme – Ac W		148	ないに		South Asia (Centre f	South Asia Co- Environment Pr (SACEF #10, Andersou Colombo Sri Lank Phone +94112	Email - info@s	Ô

SACEP

Essay Competition

Poster Competition

of Words

100 - 150

Beautiful

Grade

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Coral reefs

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Grade

300-350

Minimum

Title

Grade

Category

Number

Photographic Competition

Medium and Size and Restrictions	Your poster should be restricted in size to a 'bristle board' (dimension 64cm x 51cm). Felt pens, Pencil, platignum, ink, watercolours, crayon, pastel, oil paint, collage etc. may be used. (Computer designed posters are	the creator's le school, and k with a brief
Title	Waste Management (Priority will be given for the entries based on the main theme 'climate change')	r should have e, address of th rade at the bac
Category	(A,B,C and D categories)	Every posten name, theme the year / g

450-500

Rise and

Sea

Grade XII -

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Warming

onset of

Lanka

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Grade IX -

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Shi

Global

Grade XI

description on your artwork.

Every Essay should have the writer's

City Colombo

Coastal

the

Grade XIII

name, title, address of the school and the year / grade at the back. Both English and sinhala medium written

works are accepted.

Category	Title	Medium, Size, and Restrictions
Open (A, B, C and D categories)	Biodiversity Depletion (Priority will be given for the entries based on the main theme 'climate change')	Your photos should be unframed and restricted in size to a dimension 8cm x 10cm Any number of entries in both digital and manual are accepted
Every phic photographic location, ad	oto should er's name, idress of the	have the theme, and school, and

description on your artwork

Annex – 4 List of Participating Schools

Government School list of Colombo Zone

- 1 AL HIDHAYA M.V.
- 2 T.B.JAYAH M.V.
- 3 AL HIKMA V.
- 4 DEVI B.V.
- 5 SRI PARAKRAMABAHU M.V.
- 6 SRI SADDHARMODAYA M.V.
- 7 SIRIMAVO BANDARANAYAKE B.V.
- 8 ISIPATHANA COLLEGE
- 9 LUMBINI V.
- 10 MAHANAMA COLLEGE
- 11 ST.PAUL'S B.V.
- 12 VISHAKA V.
- 13 MUSLIM LADIES COLLEGE
- 14 HINDU COLLEGE
- 15 ROYAL COLLEGE
- 16 ANANDA COLLEGE
- 17 NALANDA COLLEGE
- 18 THURSTAN COLLEGE
- 19 ANANDA B.V.
- 20 GOTHAMI BALIKA V.
- 21 ST. JOHN'S V.
- 22 YASODARA B.V.
- 23 D.S.SENANAYAKE COLLEGE
- 24 ANURUDDHA B.M.V.
- 25 SRI SANGAMITTA B.V.
- 26 ASHOKA V.

SRI SANGARAJA MW.,COLOMBO-10 24,SIR JAMES PEIRIS MW.,COL-12 65,ST.SEBASTIAN STREET,COL-12 SRI JAYAWARDENAPURA MW.,COL-08 NARAHENPITA,COL-05 POORWARAMA RD.,KIRULAPONE,COL-05

STANMORE CRESENT, COLOMBO-07 ISIPATHANA MW., COL-05 HAVELOCK TOWN.COLOMBO-05 COLOMBO 03 MILAGIRIYA,COLOMBO-05 VAJIRA ROAD, COLOMBO-04 22, KENSINGTON GARDEN, COLOMBO-04 COLOMBO-04 COLOMBO 07 MARADANA ROAD, COL-10 NALANDA PLACE, COL-10 KUMARATHUNGA MUNIDASA MW., COL-07 MALIGAKANDA ROAD, COL-10 TEMPLE ROAD, COL-10 DEMATAGODA, COL-09 1/46, KYNSEY ROAD, BORELLA, COL-08 62, GREGORY'S ROAD, COL-07 DEMATAGODA, COL-09 62, ANANDA RAJAKARUNA MW., COL-10

VIPULASENA MW., COL-10

Semi-Government and Private School list of Colombo Zone

27 BUDDHIST LADIES COLLEGE

28 MUSAEUS COLLEGE

- 29 CAREY COLLEGE
- 30 BISHOPS COLLEGE
- 31 METHHODIST COLLEGE
- 32 HOLY FAMILY CONVENT
- 33 ST JOSEPHS COLLEGE

NO. 229, DHARMAPALA MAWATHA, COLOMBO-07 NO.58, ROSMEAD PLACE, COLOMBO-07 NO.28, KYNESY ROAD, COLOMBO-08 NO.15, BOYD PLACE, COLOMBO-03 NO.250, GALLE ROAD, COLOMBO-03 BAMBALAPITIYA, COLOMBO 04

NO. 214, DARLEY ROAD, COLOMBO- 10

Annex - 4

"Soba Sankalpana" School Competition Winners

24

Competition	Painting				Photography	Poster
Age category	Grade 3-5	Grade 6-8	Grade 9-11	Grade 12-13		Open
Gold Medal	Dedunu Sandali N. Fernando Vishaka Vidyalaya	H. Nisanasala Nirmani Perera Buddhist Ladies College	M.N.F. Nuzra Al-Hikma College	Kalaldeen Mohamed Hasan Al-Hidhaya Maha V.	Z	Don Manuwalge Dona Sachini Rasadini Musaeus College Rosmead Place Colombo 07
Silver Medal	G. Ranali Jithara Piyathilaka Sirimavo Bandaranayake Vidyalaya	Christina Rodrigo Holy Family Convent	Fathima Najma Ilyas Muslim Ladies College	Noor Mahira Miftha Muslim Ladies College	ot Qualified	Tharanga Sandaruwan Hewage Ananda V. Colombo 10.
Bronze Medal	H. Saumya Arunodini Cooray Sri Sangamiththa B. V.	Harindi Lakshika Kodithuwakku Sirimavo Bandaranayake Vidyalaya	D. M. Vipula Dissenayaka Sri Parakramabahu M.V.	Thushara Sandaruwan Gamage Ananda V.		Amila Sabuddhi Wanigaratne Ananda College Colombo 10.

Essay Competition - English Medium

Category B (Grade 6-8)Theme-Beautiful Coral ReefsPlace -Gold MedalName -Rochelle De ZilvaSchool -Holy Family ConventGrade 8

Beautiful Coral Reefs

Oceans of the world are mysterious and alive, inhabited with beautiful coral reefs, which forms of sea life, some of them known, some yet unknown.

The world's largest coral reef has been identified as the "Great barrier reef" which spreads over 3000km. It is supposed to be seen even from the moon. Captain James Cook discovered it on 11th June 1970.

These coral reefs are formed by a variety of corals in different shapes and colours. Over 200 species of fish, Sephias, Octopus, Star-fish and many other marine fossiles live within these reefs. Tourists from all over the world come to swim around the reefs under the water and to see the many coloured corals with their brightly coloured patterns. Fibre glass boats take people to and around the coral reefs.

Coral reefs are sensitive places which can suffer from the effects of natural disasters such as hurricanes typhoons and tsunami's. Raises in water temperature stresses coral to get bleached loose colour and create dents. They are also damaged by humans collecting coral for ornaments and boats dropping anchors and leaking fuel. Scientists monitor theses areas from time to time to observe various changes.

Hikkaduwa is one of the biggest tourist attractions in Sri Lanka, for its beautiful coral reefs. Divers organise under-water dive safaris and tours, canoeing and covering many fascinating aspects in and around theses reefs. It must be unique adventure for post tsunami divers to enlist affected marine life on the changed ocean bed.

As a lover of natures' marine resorts and treasures it is my earnest wish that these beautiful coral reefs be preserved for the benefits of future generations to come.

Essay Competition – English Medium Category C (Grade 9 - 11) Theme- Sri Lanka onset of Global Warming Place – Gold Medal Name - Gowashika Asokan School - St. Anne's Girl's Maha Vidyalaya Grade 11

Sri Lanka onset of Global Warming

In our day-to-day life, we hear about many problems. Mostly they are about environment problems, such as; Land, Air and Water Pollution. Nowadays, Sri Lanka and other countries are facing a bigger environmental issue which is called "Global Warming". It will automatically affect our future lives.

Global Warming is also called "A Green House Effect". The earth is habitable planet, because among others, it has an atmosphere which maintains temperatures suitable for the life at and near it's surface. This is due to what is described as a natural "Green House Effect"

Green houses are enclosed areas with glass roofs in which plants requiring elevated environment, temperature are grown. The glass roof allows solar radiation in wards but prevents a part of the heat generated from being radiated out again.

In the atmosphere gases such as Carbondioxide, oxides of Nitrogen, water vapour and Ozone act like the glass of a green house and prevent a part of the radiation that reaches the earth's surface being radiated back into space thus maintaining the temperatures, that we are familiar with. These gases are described as Green House Gases.

Like, Green House Effect only Global Warming is also increasing. It means, in green houses, it won't emit any gases out but it will combine with rays from the sun.

Like this also, in this world some gases, such as Nitrogen, Carbon dioxide and other gases won't go out but they will emit the harmful rays from the sun.

In recent times, scientists have been aware about the increasing of Carbon dioxide. They claim that the average temperature of the earth is increasing and a process of Global Warming. It is now predicted by many scientists that the average global temperature will rise by the year 2030 and that by the end of the 21st century temperatures will rise by a further 2°C.

So Sri Lanka will also be affected by this Global Warming. The industrialized countries are facing a big problem of Global warming. But we will also get that, because nowadays we are developing our industrial sectors. So if the heat increases, all in our country will start using more air conditioners. Due to this our government will have to face more problems in providing sufficient electricity for public. Already we have the problem of supplying electricity.

Sri Lanka is a small island. It is surrounded by water on all four sides. When temperature increases on earth, automatically the water will be heated and expanded. As our country is small and poor, if the lands reduce, we won't get any place to love and the survival of our small island will be threatened by rising waters.

If the sea surface is heated the atmosphere above it also becomes warmer. This will result in changes and rainfall patterns may alter. Therefore vegetation and its distribution can be affected. Changes in rainfall may affect agricultural production and alter the limits of forests and grasslands of our country.

As we are developing country, our government cannot take any action without help gaining from other countries. In the "SAARC" summit, our government should discuss these problems and find solutions for this. Since we are at war at present, the government is more concerned with the present ethnic war.

All in all global warming will affect our country, but; since it will be only after 2030. We should all be made aware of the damages and try to take precautions and solve these problems.

Essay Competition - English Medium

Category D	(Grade 12-13)
Theme-	Sea Level Rise and the capital city Colombo
Place -	Gold Medal
Name -	Hasna Faurd
School -	St, Anne's Girl's Maha Vidyalaya
Grade 12	

When the first ray of light touches the ground it is a beautiful sight to see the city of Colombo in all its glory. This city has one of the most popular parts in the world and also has been the commercial city of Sri Lanka for decades since the arrival of the British in 1790s.

But the glory of this city may not remain for long as it is under the threat of being submerged as a result of the Indian Ocean is rising due to the melting office bergs in the southern pole and the continent of Antarctica. Why has the icebergs of southern pole which had never ever melted before in history has started to melt now. When human beings try to go against the nature in the end it is we who will be affected.

All this is happening as a result of emission of green house gases for decades due to human activities. People who thought that they were the kings and started to destroy the environment is being punished by mother nature. The emission of green house gases into the atmosphere has cause the temperature of the earth to rise. Green house gases include Carbon dioxide, Chloro Fluro Carbon etc.

These green house gases when emitted in large amounts by factories, vehicles, refrigerators etc. form a barrier around the earth which does not allow the heat which enters the earth's surface in the form of rays to escape which would be the normal procedure if not for the barrier of green house gases. Instead these green house gases trap the heat on the

surface of the earth. The earth warms up due to this and causes the ice bergs to melt which leads to the rising of the sea level. This is a great threat to islands like Maldives, Sri Lanka etc. which face the danger of being submerged. Due to this important cities like Colombo would disappear or vanish leaving no trace behind.

If people had listened to the warnings given by the environmentalists for the past few years may be we wouldn't be facing this danger.

Cutting down of the trees is also a reason for global warming. Because when engaged in the process of photosynthesis trees absorb the Carbon dioxide and give out Oxygen. But as the felling of trees has increased drastically the CO₂, which would be absorbed by those trees is roaming freely in the atmosphere.

Already a larger a portion of the sea coast of Colombo has been gulped down by the ocean.

The scientists say that the sea rises by 2cm everyday; the sad plight of this is that the world could lose a beautiful country like Sri Lanka.

I believe that it is not tee late even now. We could still amend the mistakes we have done. We could implement methods to reduce the emission of CO_2 gases into the atmosphere. We also should try to plant more and more trees in order to reduce the content of CO_2 gas in to the atmosphere. It is a relief to know that many countries have joined together to sign the Kyoto Protocol to reduce the content of green house gases. But how long would it take to implement them we don't know. Until then cities like Colombo would be under the threat of being submerged by rising sea levels.

Essay Competition - Sinhala Medium (Translated)

Category B	(Grade 6-8)
Theme-	Beautiful Coral Reefs
Place -	Gold Medal
Name -	Minakshi De Mel
School -	Holy Family Convent
Grade 6	

Beautiful Coral Reefs

Coral reefs are amazing products of nature, called the amazing world under water. Many different types of Coral Reefs with different colours are distributed all around the world.

Sri Lanka is also famous for its Coral Reefs. There are around 138 different types of Corals in Sri Lanka. These are unique in their colours and shapes. Among the endemic corals to Sri Lanka, Genera *Posiloporous*, *Milliporous* and *Masiloporous* are found most. These are Red or Yellow in colour. These coral reefs are habitats of most fishes. They use coral reef for their reproduction.

In Sri Lanka, Benthota, Ambalangoda, Hikkaduwa, Dodanduwa, Medagala, Ralagala, Thangalla and Beruwala are famous for corals. Hikkaduwa is famous for coastal corals

in Sri Lanka. Coastal corals are an amazing formation of nature for the protection of the coastal areas.

Such Attractive corals are in danger at the present. Due to illegal activities of fishermen, illegal limestone breakers and tsunami disaster corals are being destroyed.

To protect these coral reefs, fishermen, coast conservation department and relevant officials should take necessary actions. Also, strict legal actions should be taken against the illegal limestone breakers.

It is all our responsibility to protect theses wonderful and amazing coral reefs.

Essay Competition – Sinhala Medium (Translated) Category D (Grade 12-13)

Theme-	Sea Level	Rise and t	he Coastal	City of	Colombo
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- Place Gold Medal
- Name N. Ransirini Wasundara Perera
- School Vishaka Vidyalaya
- Grade 12

Sea Level Rise and the Coastal City of Colombo

Sri Lanka is called the 'Pearl of the Indian Ocean' because of the ocean around it. Sea Level rise which has become a serious environmental problem in the present, will affect Sri Lanka a lot. A special attention should be paid on the Colombo city because it is the city that is populated most.

Different factors may cause changes in the Sea Level. A relative change in the Sea Level is considered to be a change due to vertical earth movement or an actual change in the Sea Level. This is measured by a tide measuring instrument.

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In general, factors responsible for the Sea Level Rise are sedimentation, thermal expansion of oceans, vertical earth movements and other anthropogenic activities such as ground water or mineral oils mining,

Global Sea Level changes acts on Sri Lanka and the Colombo city. According to the Assessment Report released by the Intergovernmental Panel on Climate Change in 2001, the average sea level has risen in 0.1-0.2m. According to the projections presented by the IPCC, the global sea level may rise in 0.09-0.88 during 1990-2100. The rate is more than the past years.

The coastal zone of Sri Lanka is 24% of the total land area of Sri Lanka, consists of 33% of the total human population, and 65% of the urban land. The population density and pressure of the Colombo Municipal Zone within the coastal zone is about 5000. The studies done on the sea level rise in such a densely populated city is less. According to the tide measuring instrument data, it is clear that during the period of 1901-1967 the relative sea level has risen by 12cm.

The sea level rise in the city of Colombo could be a severe burden on the economical and social development in future. The coastal zone of Sri Lanka contributes for about 40% of the Gross National Production. A higher proportion of it is contributed by the Colombo trade zone. Immediate effects of sea level rise, such as inundation of the coast, floods in the coastal zone and leakage of sea water may have negative effects on the income generation means of the community, such as coastal fishing, hotels and tourism industry. It may also affect infrastructure along the coast. Coast protection structures began to be created after 1986. The sea level rise was able to damage the structures created before 1986. The catastrophe, sea level rise may assist the destruction of the railways, electric and telephone wires, ditches, irrigation systems along the coast.

The sea level rise may harm the environment in large scale. According to the report published by the Central Environmental Authority in 1990, 15 hectares and 39 hectares of the Colombo city are marshes and wetlands respectively. The systems within the Colombo city may destroy due to sea level rise. Moreover, coastal erosion and increased salinities at sea outfalls may take place.

The Central Environmental Authority established under the National Environment Act released by the government of Sri Lanka, conducts public awareness programmes on sea level rise. We should be aware of the sea level rise and contribute to prevent sea level rise.

Essay Com	petition - Tamil Medium (Translated)
Category C	(Grade 9-11)
Theme-	Sri Lanka onset of Global Warming
Place -	Gold Medal
Name -	R. Sharanja
School -	St. John's Maha Vidyalaya
Grade 10	

Sri Lanka onset of Global Warming

We all know that global warming is increasing day by day. As a result the temperature of all countries is increasing rapidly when compared to the previous years. Particularly the icebergs at the Polar Regions are melting rapidly. This results in the increase of the sea level. Thus many countries face the danger of submergence.

The whole world is in a necessity to concentrate on Global Warming. The countries have started to act alertly about global warming. As an important fact Carbon Dioxide which is a green house gas creates large cracks on the earth's surface. Vehicle smokes, deforestation, testing of nuclear weapons, smokes from large factories are the reasons for increase of Carbon Dioxide.

Activities of the developed countries are the most important factor for global warming. Most of the developing countries are facing the outcome of global warming.

When Sri Lanka is considered day to day increase of vehicles, fuel usage, deforestation and war weapons are important factors. There is a small skin like ozone layer on above earth's surface. This layer stops the UV rays which are harmful to the biological environment by absorbing them before they reach the earth's surface. The scientists who were at Antarctic conducting a research recently announced about a big hole in the ozone layer. Even though the threat was announced back in 1979 only now the truth is understood. More UV rays and IR rays which are harmful to the earth and organisms will reach the surface. Initially icebergs in the Antarctic will melt. If they melt then sea level will rise by 1m. If so then 1000's of islands in the Pacific Ocean face the danger of submerging. By the fear created by this warning various methods to fill the ozone hole are being tried now.

The CFC gas emitted by the factories reaches the atmosphere because they do not mix with any gases near the surface. CFC was originally created to be used in refrigerator moved from the environment and destroyed the ozone layer. Now CFC is not only used for refrigerators but for air conditioners as well. Since the gas stays stable for a long time in the atmosphere it has destroyed the chemical structure of the ozone layer.

The gas absorb solar radiation and releases Cl atom. A Cl atom releases has the potential to destroy 100's of ozone monomers. There are 2 types of CFC gases, F11 and F12. Lifetime of F11 is 75 years and lifetime of F12 is 110 years. The effect of this polluting act will be there until the end of 21st century. The scientists who studied the ozone layer found out it increases in size in the early parts of August and September annually.

After October the Ozone layer constricts. Ozone layer holes have not only been found in Antarctica but also in several other places in Southern hemisphere. It has been observed in Southern America, Australia, and Southern New Zealand. It has been observed in the cities Rio de Janeiro and Santiago of South America, and southern city areas of Chilli.

Opportunity for the harmful rays to reach the earth has been created by the hole in the Ozone Layer. Life would become difficult for the living organisms. It will lead to changes in climate. Humans might contract many diseases like headaches, dizziness, vomiting and effects in the brain. Many islands might submerge info the ocean due to the melting of icebergs in the Polar Regions. So stopping the global warming is the duty of everyone. Let's save our world.

Essay Competition - Tamil Medium (Translated)

Category D	(Grade 12-13)
Theme-	Sea Level Rise and the Coastal City of Colombo
Place -	Gold Medal
Name -	Sekar Nishanth
School-	Hindu college
Grade 12	

Sea Level Rise and the Coastal City of Colombo

Man is changing. He is changing rapidly. Yes this modern era is changing him. So he is losing the beautiful natural resources. These resources are of multiple types like green forests, coral reefs, mangroves and sea grass beds. The benefits these resources give us are numerous.

When our Sri Lanka is taken into account, the Central Environmental Authority has identified the negative effect on many natural resources. Global warming is the cause for this extraordinary destruction of natural environment. In the time period 1990-2100 the average earth surface temperature has increased by $1.4^{\circ}-5.8^{\circ}$ C. If the temperature increases by $3^{\circ}-8^{\circ}$ F annually, the ice bergs will melt and will affect the sea levels and agricultural activities.

Meteorologists predict the sea level will rise by 1.5m by the year 2050. The changes of the solar radiation from the year 1750 give an estimated solar radiation of 0.3WM - 2WM. The temperature rises more than normal during the winter in Arctic and Antarctic areas. A small increase in El-nino activities is also expected.

Global warming is the reason for changes in Asian winter monsoon rain. Furthermore monsoon strength and position may also change. Many studies have shown the reason for the transportation of small amount of heat is the weak ocean hot currents.

In the time period from 1990-2000 the average sea level may increase by 0.09m-0.88m. So the coastline of the Colombo City may decrease and sea level might increase.

The reason for the temperature rise is the green house effect (GHE) Carbon Dioxide, Methane, Nitrous Oxide, and CFC are the gases which increase global warming by increasing GHE. The atmospheric equilibrium is destroyed by deforestation. NASA scientists have proven that 3200 Km² of Amazon forest was burnt in the year 1988 only by using satellite photographs. Sri Lanka is also not an exception. The forest cover of 44% in 1965 has been reduced to 21% now. Sri Lanka releases nearly 5000 metric tons of CO₂ annually. It is 0.06% of the whole world. CFC, Methane and Nitrous Oxides contribution for global warming is 17%, 18%, 6% respectively.

Sri Lanka releases 801000 metric tons of Methane annually. It is a 0.15% of the whole world.

CFC is used in refrigerators mostly. CFC increases by 4% annually. Increase of theses gases increase GHE. The ozone hole also affects the GHE, the Carbon Dioxide concentration increase by 37% from the year 1750 also adds to the GHE.

The No.57 Coast Conservation Act was created in 1981. The Coast Conservation Department was entrusted with the enforcement of the above act.

Preventing limestone mining, sand mining, destroying marshlands, blasting the rocks near the coastline, and arrest the people responsible for these activities. The coastal resources are destroyed by theses activities.

Even though many environmental conservation plans are there such as, Stockholm Summit for Earth Conservation in 1972, Broonland Committee for Sustainable Development in 1987, and Rio de Janeiro Earth Summit in 1992, Chipaco movement, global warming and sea level rise is a huge problem even now.

If the destruction of the shoreline of Colombo city is to be stopped and its beauty preserved by the reduction of global warming, then all the activities which increase the hole in the ozone layer should be stopped. Illegal coastline mining should be avoided. If all people follow this, our life will have a new Colombo city and we will move towards a new world.

Painting Competition Category A (Grade 3 – Grade 5) Theme Our Beach



Gold Medal

Name - Dedunu Sandalai N. Fernando School - Vishaka Vidyalaya Grade 3



Silver Medal

Name - G. Ranali Jithara Piyathilaka School - Sirimavo Bandaranayake Vidyalaya Grade – 4



Bronze Medal

Name - H. Saumya Arunodini Cooray School - Sri Sangamiththa Balika Vidyalaya, Painting Competition Category B (Grade 6 – Grade 8) Theme Keep our beaches clean



Gold Medal

Name - H. Nisanasala Nirmani Perera School - Buddhist Ladies College Grade 6



Silver Medal

Name - Christina Rodrigo School - Holy Family Convent Grade 7



Bronze Medal

Name - Harindi Lakshika Kodithuwakku School - Sirimavo Bandaranaike Vidyalaya Grade 6 Painting Competition Category C (Grade 9 – Grade 11) Theme Sea Erosion



Gold Medal

Name - M.N.F. Nuzra School - Al-Hikma College Grade 11

Painting Competition Category D (Grade 12 – Grade 13) Theme Melting Ice-Losing Lives



Gold Medal

Name - Kalaldeen Mohamed Hasan School - Al-Hidhaya Maha Vidyalaya Grade - 13



Silver Medal

Name - Fathima Najma Ilyas School - Muslim Ladies College Grade 10



Silver Medal

Name - Noor Mahira Miftha School - Muslim Ladies College Grade - 12



Bronze Medal

Name - Thushara Sandaruwan Gamage School - Ananda Vidyalaya Grade - 12



Bronze Medal

Name - D. M. Vipula Dissenayaka School - Sri Parakramabahu M.V. Grade 9 Poster Competition Category Open Theme Waste Management



Gold Medal

Name – D.M.D. Sachini Rasadini School - Musaeus College Grade 11



Silver Medal

Name - Tharanga Sandaruwan Hewage School - Ananda Vidyalaya Grade 13



Bronze Medal

Name - Amila Sabuddhi Wanigaratne School - Ananda College Grade 13

Annex 7

GOLD, SILVER, AND BRONZE MEDALS AWARDED FOR THE WINNERS

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PANEL OF JUDGES OF THE SCHOOL COMPETITIONS

Tamil Essays evaluator

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Painting and Posters Evaluator Dr. Sarath Gunasiri Perera,

Dr. Sarath Gunasiri Perera, Senior Lecturer, Department of Visual Arts, University of Kelaniya, Dalugma, Kelaniya Paintings and Posters Highlighted in the Last Page (Clockwise)

1. Place - Gold Medal Competition - Painting Age Category - Grade 9-11 Name - M.N.F. Nuzra School - Al-Hikma College Grade 11

2. Place - Gold Medal Competition - Painting Age Category - Grade 12-13 Name - Kalaldeen Mohamed Hasan School - Al-Hidhaya Maha Vidyalaya Grade 13

3. Place - Silver Medal Competition - Painting Age Category - Grade 9-11 Name - Fathima Najma Ilyas School - Muslim Ladies College Grade 10

•

 4. Place - Bronze Medal Competition - Poster
 Name - Amila Sabuddhi Wanigaratne School - Ananda College Grade 13

5. Place - Bronze Medal Competition - Painting Age Category - Grade 12-13 Name - Thushara Sandaruwan Gamage School - Ananda Vidyalaya Grade 12

 6. Place - Gold Medal Competition - Poster
 Name - Don Manuwalge Dona Sachini Rasadini School - Musaeus College Grade 11

> 7. Place - Gold Medal Competition - Painting Age Category - Grade 3₇5 Name - Dedunu Sandali N. Fernando School - Vishaka Vidyalaya Grade 3

8. Place - Gold Medal Competition - Painting Age Category - Grade 6-8 Name - H. Nisanasala Nirmani Perera School - Buddhist Ladies College Grade 6



H E Mr Mahanth Thakhur, Minister of Environment, Science and Technology, Government of Nepal, giving away prizes to the winners



Mr Udaya Gammanpila, Chairman, Central Environmental Authority , Sri Lanka, Delivering the Speech



Lighting of the Traditional Oil Lamp by Prof. Sarath Kotagama, Dr Arvind Boaz and Dr R Gopichandran



H E Mr Mahanth Thakhur, Minister of Environment, Science and Technology, Government of Nepal , Mr. Udaya Gammanpila, Chairman, CEA, and Dr Arvind Boaz, Director General, SACEP, taking around of the painting and poster exhibition



Vote of thanks by Ms Nelum Wickramasinghe, Junior Programme Officer, SACEP



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