

Speaker-Designate (Montserrat)

Tuesday, February 23, 2010

SENATE

Tuesday, February 23, 2010

The Senate met at 1.30 p.m.

PRAYERS

[MR. PRESIDENT *in the Chair*]

**SPEAKER-DESIGNATE
(MONTSERRAT)**

Mr. President: Hon. Senators, I am very pleased to inform you that we have as a visitor this afternoon, the Speaker-Designate from Montserrat, Mrs. Terasina Bodkin. [*Desk thumping*]

LEAVE OF ABSENCE

Mr. President: Hon. Senators, I have granted leave of absence to Sen. the Hon. John Jeremie SC and Sen. Michael Annisette who are both out of the country.

REVOCAION OF APPOINTMENT

Mr. President: Hon. Senators, I have received the following correspondence from His Excellency the President, Prof. George Maxwell Richards, T.C., C.M.T., Ph.D.:

“THE CONSTITUTION OF THE REPUBLIC OF TRINIDAD AND TOBAGO

By His Excellency Professor GEORGE MAXWELL RICHARDS, T.C., C.M.T., Ph.D., President and Commander-in-Chief of the Republic of Trinidad and Tobago.

/s/ G. Richards
President.

TO: SENATOR LYNDIRA OUDIT

WHEREAS by the provisions of paragraph (e) of subsection (2) of section 43 of the Constitution of the Republic of Trinidad and Tobago, the President acting in accordance with the advice of the Leader of the Opposition, is empowered to declare the seat of a Senator to be vacant:

NOW, THEREFORE, I, GEORGE MAXWELL RICHARDS, President as aforesaid, acting in accordance with the advice of the Leader of the Opposition, in exercise of the power vested in me by the said paragraph (e) of subsection (2) of section 43 of the Constitution of the Republic of Trinidad and Tobago, do hereby declare the seat of you, LYNDIRA OUDIT, to be vacant.

Revocation of Appointment
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Given under my Hand and the Seal of the President of the Republic of Trinidad and Tobago at the Office of the President, St. Ann's, this 17th day of February, 2010."

SENATORS' APPOINTMENT

Mr. President: Hon. Senators, I have received the following correspondence from His Excellency the President, Prof. George Maxwell Richards, T.C., C.M.T., Ph.D.:

"THE CONSTITUTION OF THE REPUBLIC OF TRINIDAD AND TOBAGO

By His Excellency Professor GEORGE MAXWELL RICHARDS, T.C., C.M.T., Ph.D., President and Commander-in-Chief of the Republic of Trinidad and Tobago.

/s/ G. Richards
President.

TO: MR. JOEL PRIMUS

WHEREAS Senator John Jeremie is incapable of performing his duties as a Senator by reason of his absence from Trinidad and Tobago:

NOW, THEREFORE, I, GEORGE MAXWELL RICHARDS, President as aforesaid, acting in accordance with the advice of the Prime Minister in exercise of the power vested in me by section 44 of the Constitution of the Republic of Trinidad and Tobago, do hereby appoint you, JOEL PRIMUS, to be temporarily a member of the Senate, with effect from 23rd February, 2010 and continuing during the absence from Trinidad and Tobago of Senator John Jeremie.

Given under my Hand and the Seal of the President of the Republic of Trinidad and Tobago at the Office of the President, St. Ann's, this 19th day of February, 2010."

"THE CONSTITUTION OF THE REPUBLIC OF TRINIDAD AND TOBAGO

By His Excellency Professor GEORGE MAXWELL RICHARDS, T.C., C.M.T., Ph.D., President and Commander-in-Chief of the Republic of Trinidad and Tobago.

/s/ G. Richards
President.

Senators' Appointment

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TO: MR. CHRISTOPHER JOEFIELD

In exercise of the power vested in me by paragraph (b) of subsection (2) of section 40 of the Constitution of the Republic of Trinidad and Tobago, I, GEORGE MAXWELL RICHARDS, President as aforesaid, acting in accordance with the advice of the Leader of the Opposition, do hereby appoint you, CHRISTOPHER JOEFIELD, a Senator.

Given under my Hand and the Seal of the President of the Republic of Trinidad and Tobago at the Office of the President, St. Ann's, this 17th day of February, 2010."

"THE CONSTITUTION OF THE REPUBLIC OF TRINIDAD AND TOBAGO

By His Excellency Professor GEORGE MAXWELL RICHARDS, T.C., C.M.T., Ph.D., President and Commander-in-Chief of the Republic of Trinidad and Tobago.

/s/ G. Richards
President.

TO: MS. ALTHEA ROCKE

WHEREAS Senator Michael Annisette is incapable of performing his duties as a Senator by reason of his absence from Trinidad and Tobago:

NOW, THEREFORE, I, GEORGE MAXWELL RICHARDS, President as aforesaid, in exercise of the power vested in me by section 40(2)(c) and section 44 of the Constitution of the Republic of Trinidad and Tobago, do hereby appoint you, ALTHEA ROCKE, to be temporarily a member of the Senate, with effect from 22nd February, 2010 and continuing during the absence from Trinidad and Tobago of the said Senator Michael Annisette.

Given under my Hand and the Seal of the President of the Republic of Trinidad and Tobago at the Office of the President, St. Ann's, this 19th day of February, 2010."

OATH OF ALLEGIANCE

The following Senators took and subscribed the Oath of Allegiance as required by law: Joel Primus, Christopher Joefield and Althea Rocke.

TRINIDAD AND TOBAGO REVENUE AUTHORITY BILL

Bill to establish the Trinidad and Tobago Revenue Authority and for related matters, brought from the House of Representatives [*The Minister of Trade and Industry and Minister in the Ministry of Finance*]; read the first time.

PAPERS LAID

1. Second report of the Auditor General of the Republic of Trinidad and Tobago on the financial statements of the Land Settlement Agency for the year ended December 31, 2003. [*The Minister of Trade and Industry and Minister in the Ministry of Finance (Sen. The Hon. Mariano Browne)*]
2. Report of the Auditor General of the Republic of Trinidad and Tobago on the financial statements of the Regulated Industries Commission for the year ended December 31, 2006. [*Sen. The Hon. M. Browne*]
3. Annual audited financial statements of Community Improvement Services Limited for the year ended September 30, 2008. [*Sen. The Hon. M. Browne*]
4. Annual audited financial statements of Property and Industrial Development Company of Trinidad and Tobago Limited for the year ended September 30, 2003. [*Sen. The Hon. M. Browne*]
5. Annual audited financial statements of Evolving TecKnologies and Enterprise Development Company Limited (eTecK) for the year ended September 30, 2004. [*Sen. The Hon. M. Browne*]
6. Annual audited financial statements of Evolving TecKnologies and Enterprise Development Company Limited (eTecK) for the year ended September 30, 2005. [*Sen. The Hon. M. Browne*]
7. Annual audited financial statements of the CEPEP Company Limited for the financial year ended September 30, 2009. [*Sen. The Hon. M. Browne*]
8. Annual audited financial statements for the First Citizens Holdings Limited for the financial year ended September 30, 2009. [*Sen. The Hon. M. Browne*]
9. Annual report of First Citizens Holdings Limited for the financial year ended September 20, 2009. [*Sen. The Hon. M. Browne*]

ORAL ANSWERS TO QUESTIONS

**Emperor Valley Zoo
(Status of)**

9. Sen. Dr. Adesh Nanan asked the hon. Minister of Tourism:

- A. Could the Minister inform the Senate of the percentage of work completed on the Emperor Valley Zoo?
- B. Would the Minister state whether it is the intention of the Government to have the animals relocated to facilitate the upgrade?

The Minister of Tourism (Hon. Joseph Ross): Thank you, Mr. President. [*Desk thumping*] The Tourism Development Company Limited (TDC) has been given responsibility for the implementation of the master plan for the development and enhancement of the Emperor Valley Zoo at an estimated cost of \$56.8 million. The project comprises 14 construction phases. Phase one is the largest and the most complex phase of the project and encompasses the Humming Bird Garden, Giant River Otter, Butterfly Garden, Turtle Pool, Flamingoes, Fish Ponds and Sculpture Garden. Phase one commenced in May 2009 and is scheduled for completion in February 2010. As at October 31, 2009, phase one was 50 per cent complete and the estimated percentage completion of the overall project at that time was 27.6 per cent. The project is proceeding on schedule and is expected to be completed by November 2010.

With respect to part (b) of the question, during the various construction phases of the project, the animals would be relocated and temporary housing provided for them on and off site.

Sen. Dr. Nanan: Could the hon. Minister of Tourism indicate the site or sites that he has mentioned—the location.

Hon. J. Ross: That is where they are being housed at the moment?

Sen. Dr. Nanan: Yes.

Hon. J. Ross: Well, as I indicated in the answer, they “would be relocated and temporary housing provided for them on”—so some would be on site; relocated to other locations in the zoo and some off site. To the best of my understanding, I think provision is being made for some of them to be housed in Manzanilla.

**Role of Zoological Society
(Following Zoo Upgrade)**

10. Sen. Dr. Adesh Nanan asked the hon. Minister of Tourism:

Could the Minister indicate to the Senate the role of the Zoological Society following the upgrade of the Emperor Valley Zoo?

The Minister of Tourism (Hon. Joseph Ross): Thank you again, Mr. President. With respect to that question, at present the Zoological Society of Trinidad and Tobago is responsible for the operation of the Emperor Valley Zoo as provided for by the Zoological Society of Trinidad and Tobago Incorporation Ordinance 1952. The Emperor Valley Zoo is being upgraded, as you know, at this present time, and all management issues that would arise as a consequence of this upgrade are currently being addressed.

Sen. Dr. Nanan: Is it the intention of the Government to grab the land at the zoo?

Hon. Senator: What?

Sen. Dr. Nanan: To take the land at the zoo—acquire.

Sen. Narace: That land belongs to the Government.

Sen. Dr. Nanan: It does not belong to the Government; it belongs to the Zoological Society.

Hon. J. Ross: Mr. President, I think that is a completely different question. It is a new question and I would prefer if the hon. Member would pose the question more appropriately.

Sen. Dr. Nanan: Mr. President, the question was asking the role of the Zoological Society. The question I asked the Minister is if the Government intends to acquire the land of the zoo, and as far as I am aware the Zoological Society has the role and responsibility for the zoo with respect to the subvention of the Government. The question I am asking is, what will be the role of the Zoological Society after the upgrade?

Hon. J. Ross: Mr. President, I think I clearly answered the question. I said that at the moment, as far as we are aware, the Zoological Society continues to operate the zoo and any management issues that would arise as a consequence of this upgrade, would be addressed.

1.45 p.m.

**Tourism Development Company
(Upgrade of Emperor Valley Zoo)**

11. **Sen. Dr. Adesh Nanan** asked the hon. Minister of Tourism:

Could the Minister indicate to the Senate the role of the Tourism Development Company (TDC) in the upgrade of the Emperor Valley Zoo?

The Minister of Tourism (Hon. Joseph Ross): The Tourism Development Company Limited is responsible for the implementation of the master plan for the development and enhancement of the Emperor Valley Zoo.

Sen. Dr. Nanan: Mr. President, with respect to the role of the Tourism Development Company, is the Minister saying that the company has nothing to do with the upgrade?

Hon. J. Ross: Mr. President, let me repeat the question and you will see how I answered it:

"Could the Minister indicate to the Senate the role of the Tourism Development Company (TDC) in the upgrade of the Emperor Valley Zoo?"

I answered the question by informing the hon. Member that TDC is responsible for the implementation of the master plan for the development and enhancement of the project.

Sen. Dr. Nanan: Mr. President, I understand the Minister with respect of the implementation, but with respect to the existing upgrade, the master plan is a big plan—they have given us over 14 pages—what is the role now of the TDC in the existing upgrade?

Hon. J. Ross: Mr. President, the TDC is responsible for implementing the upgrade.

**Crude Oil and Natural Gas
(Details of Price)**

21. **Sen. Prof. Ramesh Deosaran** on behalf of Sen. Basharat Ali asked the hon. Minister of Finance:

Could the Minister advise the Senate on the following:

- (a) In accordance with subsection 13(3) of the Heritage and Stabilisation Fund Act, what is the eleven-year moving average price for crude oil and natural gas used for estimating petroleum revenues in the financial year October 2009 to September 2010; and

- (b) What is the estimated production and petroleum revenues for crude oil and natural gas as the aggregate of supplemental petroleum tax, petroleum profits tax and royalties for the financial year October 2009 to September 2010?

The Minister of Trade and Industry and Minister in the Ministry of Finance (Sen. The Hon. Mariano Browne): Mr. President, the answer to question No. 21 is not yet ready.

Question, by leave, deferred.

**Revenues for Oil and Natural Gas
(Details of)**

22. Sen. Prof. Ramesh Deosaran on behalf of Sen. Basharat Ali asked the hon. Minister of Finance:

Could the Minister advise the Senate on the following:

- (a) what was the estimated production and petroleum revenues for oil and natural gas for the quarter October to December, 2009;
- (b) with respect to (a), what was the actual production and petroleum revenues collected for that period;
- (c) with reference to (b), whether the actual revenues exceed the estimates for that period by more than 10 per cent; and
- (d) whether the excess revenue has been or will be transferred to the Heritage and Stabilisation Fund (HSF)?

The Minister of Trade and Industry and Minister in the Ministry of Finance (Sen. The Hon. Mariano Browne): Mr. President, the answer to question No. 22 is not yet approved. I will be in a position to answer question No. 22 next week.

Question, by leave, deferred.

**Licensing Division
(Arrangement to Computerize Records)**

30. Sen. Wade Mark asked the hon. Minister of Works and Transport:

Could the Minister inform this Senate:

- A. Whether the Government of Trinidad and Tobago has entered into a government-to-government arrangement with the Canadian Province of Nova Scotia to computerize the records of the Licensing Division?

- B. (i) if the answer to (A) is in the affirmative, would the hon. Minister state the cost of such arrangement to the Government; and
- (ii) when would this exercise be completed?
- C. What steps have been taken to secure the integrity of the records of the Licensing Division during this exercise?

The Minister of Energy and Energy Industries (Sen. The Hon. Conrad Enill): Mr. President, I wish to advise that the answer to this question is not now available and we will be in a position, I think, to have this ready in two weeks' time.

Question, by leave, deferred.

Illegal Immigrants (Uncontrolled Influx)

31. Sen. Wade Mark asked the hon. Minister of National Security:

Could the Minister inform this Senate:

- A. What steps are being taken by his Ministry to address the question of the uncontrolled influx of illegal immigrants into Trinidad and Tobago from countries within the Caribbean region and African States; and
- B. The number of immigrants arrested, detained and/or deported and the countries of origin during the last five years?

The Minister of National Security (Sen. The Hon. Martin Joseph): Mr. President, unfortunately, I am not in a position to answer that question today. It should be ready in two weeks' time.

Question, by leave, deferred.

Reconstruction of Agricultural Access Roads

32. Sen. Wade Mark asked the hon. Minister of Agriculture, Land and Marine Resources:

With respect to the reconstruction of agricultural access roads, could the Minister indicate to the Senate:

- (a) the number of agricultural access roads reconstructed for the years 2008 and 2009; and
- (b) the number of agricultural access roads programmed for reconstruction in 2010?

The Minister of Agriculture, Land and Marine Resources (Sen. The Hon. Arnold Piggott): Mr. President, the answer to this question is not yet ready. It should be ready within a few weeks.

Sen. Mark: Mr. President, let us be serious. We always get a time frame; one week, two weeks or three weeks. To tell this honourable Senate in a few weeks could be any time. It could be 10 weeks from now. I insist, through you, Sir, that the hon. Minister gives us a specific period in terms of when the answer would be ready.

Mr. President: I am inclined to be supportive of your point of view. However, there is nothing in the Standing Orders that requires a Minister to indicate any particular date that any answer would be ready. There is no mechanism by which we can force him to present an answer on any given day. The Standing Orders merely provide that any answer, which is not provided on any given day, may be answered on the following occasion. It has been the practice that Ministers make an effort to say they would have it in one or two weeks. In the instant case, the Minister has been a little bit vaguer. There is nothing we can do about that, but I am sympathetic to your point of view.

Question, by leave, deferred.

WRITTEN ANSWERS TO QUESTIONS

The following question was asked by Sen. Dr. Adesh Nanan:

Water and Sewerage Authority (Wells drilled from 2002 to Present)

12. Could the hon. Minister of Public Utilities indicate the number of wells drilled by WASA from 2002 to present and the location of the said wells?

Vide end of sitting for written answer.

The following questions were asked by Sen. Lyndira Oudit:

Trinidad and Tobago Entertainment Company Limited (Increases in Administrative Expenses)

24. Could the hon. Minister of Trade and Industry and Minister in the Ministry of Finance indicate reasons for increases of the administrative expenses of the

Trinidad and Tobago Entertainment Company Limited from 2007 to 2008 in the following areas?

	2007	2008
Directors fees	\$140,200	\$302,600
Legal and Professional Fees	\$ 58,358	\$134,487
Office Rental	\$200,838	\$434,499
Telephone	\$ 362	\$ 61,253
Vehicle Rental	—	\$138,235

**Trinidad and Tobago Entertainment Company
(Increases in Project Expenditure)**

25. Could the hon. Minister of Trade and Industry and Minister in the Ministry of Finance indicate factors which account for increases in project expenditure of the Trinidad and Tobago Entertainment Company from 2007 to 2008 in the following areas?

	2007	2008
Revolving investment Arrangement	\$256,486	\$1,372,035
Capacity development	\$198,047	\$ 766,358

Naturalized Citizens

40. A. Would the hon. Minister of National Security indicate to the Senate the number of foreign nationals who have been naturalized as citizens of Trinidad and Tobago since 2006;

B. Would the Minister also inform the Senate of the country of origin of these naturalized citizens since 2006?

Vide end of sitting for written answers.

CLIMATE CHANGE CONVENTION AND KYOTO PROTOCOL

Sen. Dr. Adesh Nanan: Mr. President, I beg to move the following Motion standing in my name:

Whereas Trinidad and Tobago is a signatory to the climate change convention and the Kyoto Protocol and *whereas* global warming will cause sea levels to rise;

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Be it resolved that the Government take immediate steps to protect the coastline from the said sea level rise and said salt water intrusion of all agricultural lands.

Mr. President, the United Nations Framework Convention on Climate Change says and I quote:

“The Convention on Climate Change sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. It recognizes that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. The Convention enjoys near universal membership, with 192 countries having ratified.

Under the Convention, governments:

- gather and share information on greenhouse gas emissions, national policies and best practices;
- launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries;
- cooperate in preparing for adaptation to the impacts of climate change.

The Convention entered into force on 21 March 1994.”

Mr. President, the Convention talks about gathering and sharing information on greenhouse gas emissions and I need to take some time to deal with this greenhouse gas emission.

The greenhouse gas effect that causes global warming starts from a very simple physics definition. It deals with the absorption of solar radiation by the earth. On a daily basis, you have solar radiation passing through the atmosphere; some of it reflected by the atmosphere itself and some of the radiation is absorbed by the earth. We are dealing with the spectrum of light that is visible.

In a greenhouse, you have visible light passing through a transparent medium and, because of the warming in the greenhouse, you have longer wavelengths of light being reflected—that is infrared radiation. Because of the longer wavelength, this infrared band is the transmitter of heat and these longer wavelengths of light cannot pass through the transparent medium, so the heat is trapped within the greenhouse.

If you compare the effect in the greenhouse with the atmosphere, the similarity is based on the structure of the atmosphere. That is the layer of air very close to the earth's surface, and, as I said before, you have solar radiation coming into the atmosphere, some being reflected and some being absorbed by the earth's surface and reradiated in the form of heat in the longer wavelengths at the infrared part of the spectrum.

It is a simple analogy with respect of the windscreen of a car. Although sunlight is coming through the windscreen, the car will get warm, but you, on whom the sunlight is falling, will not get sunburnt. The reason is that the shorter wavelengths of light, that is the ultraviolet light, will not pass through the windscreen.

Here we see the situation with the radiation coming from the earth of infrared waves, the longer wavelengths. They are trapped by the atmosphere only if there are certain molecules of specific gases. Although the longer wavelengths, the infrared radiation, are coming off the earth's surface, some of it is trapped in the atmosphere close to the earth and some is reflected into space. It is this part that is trapped by the atmosphere that is of concern to all nations because this is what global warming is about.

The most important gas in the atmosphere that absorbs the infrared radiation is water vapour. Yes, it is a greenhouse gas, but because it is affected by the atmospheric temperature, it is not really of concern in this debate. We are concerned with carbon dioxide, methane to some extent, nitrous oxide and fluorocarbons.

The United Nations Framework Convention on Climate Change only talked about gathering and sharing information on greenhouse gas emission, launching national strategies for addressing greenhouse gas emissions and cooperation in preparing for adaptation to the impacts of climate change. It had no real teeth. That is why there was another aspect to this convention, which is the coming on stream of the Kyoto Protocol. This is a protocol to the United Nations Framework Convention on Climate Change, aimed at fighting global warming.

While the United Nations Framework Convention on Climate Change is an international environmental treaty, with the goal of achieving stabilization of the greenhouse gas concentrations in the atmosphere at a level that will minimize dangerous and anthropogenic interference in the climate system, this Kyoto Protocol was initially adopted on December 11, 1997, in Kyoto, Japan and entered into force in February 2005.

As at November 2009, 187 States have signed and ratified the protocol. What is interesting is that under the protocol—and I need to give some history with respect to countries and when the protocol came into being.

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Article 25 of the Protocol specifies that the Protocol entered into force on the 19th day after the date on which not less than 55 parties to the Convention, incorporating parties included, in Annex I, which accounted in total for at least 55 per cent of the total carbon dioxide emissions in 1990 of the Annex I countries having deposited their instruments of ratification, acceptance, approval or accession.

The EU and its Member States ratified the Protocol in May 2002. Of the two conditions, the “55 parties” clause was reached on May 23, 2002, when Iceland ratified the Protocol. The ratification by Russia on November 18, 2004, satisfied the 55 per cent clause and brought the treaty into force effective February 16, 2005 after the required lapse of 90 days.

2.00 p.m.

At as November 2009, 186 countries have ratified the agreement. With respect to this particular Kyoto Protocol, I need to give an idea of what is happening. The protocol is dealing specifically with carbon dioxide and the carbon dioxide equivalent. Whether you have greenhouse gases, methane or nitrous oxide, you must have a carbon dioxide equivalent.

As I have said before, the greenhouse gases trap a certain kind of light, that is the infrared radiation and that has the warming effect in the atmosphere. By definition, a greenhouse gas is one that is able to absorb infrared radiation and because of the definition, it will immediately eliminate the two major constituents of the atmosphere, which are nitrogen and oxygen. That is why I said the molecule must have at least three atoms or more to be an infrared absorber. The atmosphere’s most abundant molecule is water vapour.

The other part, with respect to the Kyoto Protocol and the carbon dioxide equivalent, is when we consider the net warming effect. You have what is called the global warming potential. The global warming potential is if you take the two and compare the gas with carbon dioxide and nitrous oxide with carbon dioxide, the greenhouse gas, carbon dioxide equivalent that the Kyoto Protocol is working on is based on the so-called global warming potential. The global warming potential of a gas is the warming caused over a 100-year period by the emission of 1 tonne of the gas, relative to the warming caused over the same period, by the emission of 1 tonne of carbon dioxide. Although the global warming of the methane and nitrous oxide is much higher, in terms of warming the atmosphere, if you do the equivalent and some of the calculations, you will see if you reduce the methane emission by 1 tonne, it is equivalent to reducing carbon dioxide emissions by 25 tonnes. That is why we have—and if you look at nitrous oxide, 1

tonne is equivalent to 298 tonnes of carbon dioxide. That is what the Kyoto Protocol operates on, in terms of the carbon dioxide gas and the carbon dioxide equivalent.

If you take the actual concentration of carbon dioxide as it is today, it is registering at 380 parts per million. If you look at the total amount of carbon dioxide, that includes the equivalent which is of methane, nitrous oxide and the others, you will see that it goes up to 450 parts per million. Four hundred and fifty parts per million is the maximum concentration before we can allow interruptions of climate patterns. However, there are certain other factors that bring it down to a respectable level, so that we do not reach that level of danger. Right now, we are back down to an estimated range of about 310 to 435 parts per million. What is important, with respect to this particular situation, in terms of global warming, is that there are other factors that may become important, which are air pollution and even aerosols, because they have a cooling effect on the earth.

At some point, we have a situation developing, where pollution is killing people and as we go about cleaning up factories and power plants to reduce pollution, where there is more global warming—on the one hand, the air pollution now cools the earth and if you reduce pollution, you can have a situation developing where the temperature of the earth starts to rise, so that much warming would come from the greenhouse gases. That is what the Kyoto Protocol is based on. We specifically talked about carbon dioxide and carbon dioxide equivalents.

If we look at the small island developing states, what we have observed is that basically, they have reported an increase in ocean temperature, especially around small island developing states. If you compare some of the islands that they are calling small islands, you would see that some islands like the Maldives can be totally destroyed by an increase in sea level. Fortunately, here in Trinidad and Tobago, as the Motion talks about salt water increase and protecting the coastlines, in terms of these impacts, we do not run the risk right now of being completely overrun by the ocean.

We have to look at the situation of sea level rise and the increase in water temperature, even if you go and look at the Tobago situation, with respect to the coral reefs and the destruction of the coral reefs. It has to be taken into consideration, in terms of sea surface temperature. The increase in sea surface temperature causes the coral to become bleached and, of course, bleaching would cause the coral to die. That particular aspect of Tobago, the entire reef structure, could be destroyed and, of course, it is a major part; not only in terms of the tourism products, but also in terms of their fisheries.

We can also look at, when we consider the greenhouse gas effect, greenhouse gas emissions globally. I would talk later, in terms of some of the other developed countries. In the Kyoto Protocol, we have Annex 1. Those countries are the ones that have the high emission of carbon dioxide in the atmosphere with the steps that they are taking. It is important to compare.

The Kyoto Protocol talks about 1990 emissions. If you look at some countries like India in 1990, there was too much industrialization at that time, but they have moved forward, in terms of their carbon dioxide emissions. China has also been number one, in terms of carbon dioxide emissions into the atmosphere. They are now number one. China is saying that, based on a per capita basis, they are producing a small amount in comparison to other countries. Of course, China has such a large population.

If we look at some of the damaging effects of global warming, there is another situation that we have to look at, which is called ocean anoxia. It is important, because some of the reports that were coming out, in terms of drilling on our north coast, they had to move some of the sites because of the location of mud volcanoes. From the mud volcanoes, there can be emissions of methane. The ocean anoxia is brought about by methane gas being bubbled through the ocean. If we have methane gas bubbling through the ocean, we will have a situation where the oxygen exchange between methane and the oxygen in the water can lead to anoxia, which is the oxygen being depleted in certain areas, which can lead to massive fish kills. We have to be extremely careful, in terms of this particular situation of ocean anoxia.

Another factor that has to be considered when we are dealing with global warming is the trapping, not only of bubbling methane, but the trapping of methane gas. If I recall, it was in the arctic that they found that at very low temperatures there are methane ice slabs or methane ice boxes below the seabed. These are large potential stores for methane. There are certain theories, with respect to these large releases of methane into the atmosphere. It is important, because if you look at the cycle of methane, methane leaving the ocean would be mixed with droplets of water into the atmosphere, then at a certain point in time the water would be converted into rain. There is methane at a certain concentration in the atmosphere. The methane is then mixed with oxygen. If lightning is discharged, we can have a situation where an explosion can take place and a lot of carbon dioxide produced. Eventually, you would have that global warming aspect being multiplied, but hopefully these large slabs of methane will remain dormant under the surface of the ocean and that will not happen, in terms of a massive global increase in the atmosphere to really affect the temperature of the ocean.

Also dealing with ocean temperature, we see another factor, that is dealing with not only the bleaching of the coral but as the temperature of the ocean rises, you will have—if you look at the meteorological aspect and you track hurricanes, you will see that the hurricanes that are coming from the African coast towards the Caribbean, always follow the path where the water temperatures are very high. If you look at the map, you would always see red. That is where the hurricanes normally track, taking that course towards the islands.

If there is an increase in the surface temperature of the water, you can have a situation developing where there are unusual hurricane paths developing and more intense hurricanes. That is why here, with respect to the rise in sea level and the increase in the strength of hurricanes, we have to be extremely careful, especially in Trinidad and Tobago and in fact the Caribbean as a whole.

There is another study, with respect to small island developing states and the potential for these large hurricanes. It is interesting, if you look at some of the insurance situations, what is happening now is because of the Kyoto Protocol, there is a possibility where you can have these countries that are in Annex I buy carbon credits, or they can go into projects where there is that kind of carbon dioxide reductions. If they want to go into a project in their country, that would liberate a certain amount of carbon dioxide into the atmosphere, they can look at other developing countries with a forested area as they did in Guyana, and designate that area as a preserved area and that will be part of the exchange, with respect to the carbon dioxide level in what is called the cap and trade system.

The important factor, with respect to the Kyoto Protocol, is allowing this cap and trade system. The Kyoto Protocol sets a cap, with respect to the Annex I countries, whereas that convention framework on climate change does not really set any cap as such. The Kyoto Protocol sets a cap and the cap requires countries to reduce their emissions by 5.2 per cent below their 1990 baseline over the 2008—2012 period.

2.15 p.m.

Mr. President, if you look at an example, let us say a power plant or a paper factory, if they can calculate the amount of carbon dioxide that would be emitted into the atmosphere over a period of time, or over the year, then they could look at some projects somewhere in another country or probably in their own country, with respect to reducing carbon dioxide going into the atmosphere. So that is why you have the cap and trade system, and that is allowed under the Kyoto Protocol. There are great opportunities for Trinidad and Tobago at this particular time under

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this particular protocol where these developed countries are looking for projects that will reduce the carbon dioxide emissions into the atmosphere. It would not be in their jurisdictions, but it would be elsewhere and they could exchange that.

This is important, because if we are trying to regulate the amount of carbon dioxide in the atmosphere, so controlling the temperature of the atmosphere and, as a result, the temperature of the ocean, it is important that these countries get these projects, or are able to go into these projects to have that exchange that you would not reach that level that I talked about in terms of the 435 part per million. That is a benchmark figure that would really affect the climate.

So, you have the clean development mechanism under the Kyoto Protocol that talks about emission reduction units and credits that can be given. So, Trinidad and Tobago has an opportunity in terms of trying to mitigate against the rising sea level, and not only the rising sea level, but the increase in ocean temperature, to see how we can utilize this particular cap and trade system to our benefit.

If one looks at the small island developing states, one will see that Barbados seems to be ahead of us in terms of their approach. Barbados has been able, under the small island developing states to have many opportunities under their national policy with respect to small island developing states. I have not seen anything in our policy direction with respect to us being a small island developing state, as to how we can tap in to this particular opportunity, because we are at risk; developed countries have recognized that we are at risk and we can assist. So with respect to coastal barriers and our fisheries, they can all play a part in assisting at this time.

I wanted to do a comparison, because it is important here when we look at countries like Canada and Australia—before I go there, I will do the five principle concepts of the Kyoto Protocol: Commitments to reduce greenhouse gases that are legally binding for Annex I countries, as well as general commitments for all member countries.

Mr. President, do you know what is important? Many measures under the Kyoto Protocol—we are supposed to have a greenhouse gas inventory. I do not know if we have a greenhouse gas inventory in this country. I do not know if the Environmental Management Authority (EMA) has a greenhouse gas inventory in terms of how much carbon dioxide or carbon dioxide equivalent is being produced annually in Trinidad and Tobago as a whole. We need to have that information if we are going to have any bargaining power with respect to developed countries. It is really detailed information here that I do not want to get into at this time, but the concepts really include the opportunity to trade, and a lot of the interest now is clean development mechanisms and emission trading.

I want to look at some of the current positions of governments dealing with Australia as a whole. Now, Australia, like India and China, were already doing emissions. What is interesting is that Australia was pledging \$300 million to reduce greenhouse gas emissions over three years. The greenhouse gas emissions in Australia from 2008—2012 was projected to be at 9 per cent above the level in 1990. What happens is, if you look at a graph in terms of carbon dioxide emissions, you will see a spike, and anytime there is land use and change in forestry—you would have seen deforestation causing a spike in carbon dioxide and those situations. In terms of industrialization, you will see carbon dioxide levels going up. This figure I quoted is slightly above the Kyoto Protocol limitation of 8 per cent. The United Nations Framework Convention on Climate Change reported that the greenhouse gas emission in Australia in 2004 was 25.6 per cent above the level in 1990. So, you see, there are some discrepancies with respect to how these countries—

What is interesting is that some of these developed countries went into their own little agreement. I do not know if they are trying to surreptitiously avoid the Kyoto Protocol, but some of these countries like India, Australia and China have had a little agreement on their own with respect to setting their own benchmark, and not the Kyoto Protocol benchmark with respect to cutting the emission of carbon dioxide.

There is also that significant organization called Green Peace that keeps on the back of these countries with respect to how they are doing. In fact, Green Peace is doing what you call the policing of the Kyoto Protocol to some extent. That is the Australia situation, but Australia has committed 25 per cent from the 2000 level by 2020. What is interesting is that although you have that figure, 5 per cent out of the 25 per cent reduction could be achieved by that government's purchase of international offsets. So that is they are going to look at other countries, probably developing countries, to see how they can offset this figure.

We need to examine a situation with respect to a Private Member's Bill in Canada. It is interesting, because it shows that although the Kyoto Protocol is in place with respect to global warming, the control of carbon dioxide and the impact on global warming, countries are not really complying. I want to draw an example because a Private Member's Bill—

Sen. Dr. Dick-Forde: You said something just now and I did not hear you. You said countries are not ready to something. I am trying to follow you. It is the last thing you said.

Sen. Dr. A. Nanan: I said that although the Kyoto Protocol set certain levels with respect to benchmarking—I gave figures of 435 parts per million carbon dioxide—I also pointed to some countries forming a little pact on their own and countries are not complying. The reason I brought this into the debate with respect to this Private Member's Bill that was in the Canadian Parliament—this was put forward by Pablo Rodriguez who was a liberal, and this was to force the government to ensure that Canada meets its global climate change obligations under the Kyoto Protocol.

What happened is that the Bill was passed in the House of Commons on February 14, 2007 with a vote of 161 to 113. The Senate passed the Bill and it received a royal assent on June 22, 2007. However, the government, as promised, has largely ignored the Bill which was to force the government in 60 days to form a detailed plan citing economic reasons. So, we have a situation where a Private Member's Bill was brought to Parliament and it was passed in the House of Commons and assented to, but nothing has happened with respect to that particular situation.

There are environmental groups in Canada working together to demand that Canadian politicians take the threat of climate change seriously and make the necessary changes to ensure the safety and health of future generations. I just brought that into the debate to show what is happening with respect to that situation. So even if a Bill was passed in the Parliament and assented to, you still do not have the impact that is required. That is the Canadian situation.

I want to look now at the People's Republic of China. As of August 27, 2008, China surpassed the United States as the biggest emitter in the world of carbon dioxide mainly from power generation. This is coming from the Centre for Global Development. However, on a per capita basis, as I was saying, the emission by the power sector in the US is still nearly four times that in China. The top 10 power sector emitters in the world in absolute terms are China, the United States of America, India, Russia, Germany, Japan, the United Kingdom, Australia, South Africa and South Korea. If you count the 27 member states of the European Union as a single country, they would rank as the third biggest carbon dioxide polluter after China and the United States of America. So, if you are looking at per capita, the emissions from the US power sector are the second highest in the world.

Mr. President, this is important information. The production of electricity in the US produces about 9.5 tonnes of carbon dioxide per person per year, compared to 2.5 tonnes per person per year in China; 0.6 in India and 0.1 in Brazil. The

average per capita emission from electricity and heat production in the EU is 3.3 tonnes per year. Only Australia as graded at 10 tonnes per year emits more power-related emissions per person than the US does.

However, China is saying that it is unfair, as I pointed out, to compare them with other countries because they make up about one-fifth of the world's population, and the per capita emission in Canada was low compared to the emission in the industrialized world. Even after one combines the population of the European Union, the United States of America, Canada, Australia, Japan and South Korea, China still outnumbered them by a few hundred million. That is the situation with China and per capita.

Another industrialized country I want to look at is Germany. Germany reduced gas emissions by 22.4 per cent between 1990—2008. Now Germany, in terms of utilization of renewable energy, that is high on their agenda.

On June 28, 2006, the German Government announced that they would exempt its coal industry from requirements under the EU internal emission trading system. So although they are supporting a clean environment and the Kyoto Protocol, what is important here is that decision is very disappointing. So, you have a situation where you have to be careful with the energy lobby, because it could be much more than actually the environment in terms of preservation of the environment, but Germany had voluntarily committed to reduce carbon dioxide emission by 21 per cent from the level in 1990, and that has been almost practically met, because their emission now has been reduced by 19 per cent.

I just want to go quickly to France. There is a situation in France where in 2004 France shut down its last coalmine. So, France has moved away from coal and it gets 80 per cent of its electricity from nuclear power and, therefore, they have relative low carbon dioxide emissions except for its transport sector.

2.30 p.m.

What it shows here is that within the same geographic location you can have mechanisms to reduce your carbon dioxide emissions. France shut down all of its coal mines in 2004 and has gone to nuclear power. Now, I do not know in terms of nuclear waste or radioactive waste how that will factor in later on, but they have complied with respect to their low carbon dioxide emissions, and they have done that by moving from coal to nuclear power.

Now what is interesting here is 1990 is the figure for this Kyoto Protocol, so it is a comparison between then and now. In 1990 the figures were very low for some of these countries so they do not have to do much in terms of adjusting.

Now, this greenhouse gas emission between 1990 and 2007 increased by 12 per cent and Norway has directly reduced its own greenhouse gas emissions, because what Norway is doing—you would not believe that, what I read was a total shock—is that they are financing reforestation in China and that is allowed under the Kyoto Protocol. So, Norway, to reduce its greenhouse gas emissions is financing a reforestation project in China.

Let us look at this big power house, that is India, because India signed and ratified the protocol in August 2002. Now, India has a position where India maintains that the major responsibility of curbing emissions rests with developed countries which have accumulated emissions over a long period of time. We have to consider when we are dealing with global warming, the rise in sea levels and the threat to small island states, because they are very vulnerable here, if these developed countries do not control—let us say there is no cap with respect to carbon dioxide emissions and industrialization continues at the pace, there will be a threat, not only to the tourism industry, but to our safety as a whole with respect to the climate change that is possible, so it is a voluntary basis in terms of compliance. As somebody said, there is no real enforcement on the Kyoto Protocol, but whatever happens with respect to developed countries will directly affect the small island developing states.

The energy policy of the United Kingdom fully endorses the goals for carbon dioxide emission reduction. Of course, they signed the Kyoto Protocol. Now, on March 13, 2007 a draft Climate Change Bill was brought to Parliament, but if you read through the literature you will see it did not go anywhere, so all of these Bills are coming in, because people are concerned, but it seems that the energy lobby is much stronger.

What is happening there is that we in Trinidad and Tobago, in terms of our industrialization thrust—developed countries are so far ahead, that they have put so much carbon dioxide into the atmosphere and they have moved forward in terms of industrialization, and they are saying that now, you, in Trinidad and Tobago who are now on that industrialization path, need to watch it.

Some of the literature talks about curry favour. Why should the industrialization in developed countries be able to go on an industrialization thrust and those developing countries that are moving into that particular path have to curb their carbon dioxide emissions? You have already put your large amount of carbon dioxide into the atmosphere, and to some extent, affected the climate. So that is India with respect to their rapid industrialization.

Let us examine Russia. Parliament approved the Treaty on November 04, 2004 and Russia officially notified the United Nations of its ratification on November 18, 2004. Now, President Vladimir Putin decided earlier that he was in favour of the protocol, but suddenly something happened, I do not know what obstacle came in terms of the Russia Parliament, but you had a reversal of that particular position with respect to Russia.

In the Soviet Union the Kyoto Protocol limits emissions to a percentage increase or decrease from the 1990 levels. Since 1990 the economies of most countries in the former Soviet Union have collapsed—so this is a different situation—as have the greenhouse gas emissions. So, prior to 1990 there are some countries now which are emitting less greenhouse gases because their industries collapsed, so Russia will have no problem in meeting its commitment under Kyoto.

I want to deal with the United States because they have an unusual position. Although they signed the Kyoto Protocol, they have neither ratified nor withdrawn from the protocol, so when you are saying that their signing of the protocol is symbolic—Now, if you trace with respect to the administration: the Clinton administration never submitted the protocol to the Senate for ratification. If you go to President George Bush, he did not submit the Treaty for Senate ratification—whether we based it on the exemption granted to China. However, in 2002 the EPA released a climate action report 2002, that gave them some kind of hope with respect to the situation and the Kyoto Protocol.

President Barack Obama has as yet taken no action with the Senate that would change the position with the United States towards this protocol. Now, when Obama was in Turkey in April 2009 he said that it does not make sense for the United States to sign the Kyoto Protocol because it is about to end. But at that time you still had two years and 11 months for the four-year commitment period, so I do not know if they are saying what he said was not true or they did not understand the time for the protocol to come to an end. But even within the United States there are certain pockets that are dealing with greenhouse gas emissions, some of the states are dealing directly—you have New Hampshire, Beaumont—with projects to reduce greenhouse gas emissions, although they have not really followed at the Senate level.

Now, if you look at California, which is important, since Arnold Schwarzenegger, on September 27, 2006, California Government signed into law a Bill known as the Global Warming Solutions Act and that established a timetable to reduce the State's greenhouse gas emissions. It is interesting that they

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are ranked as the 12th largest in the world by 25 per cent by the year 2020. That means that California will reduce by 25 per cent the greenhouse gas emissions in the year 2020. Now, this law effectively puts California in line with the Kyoto limitations, and as I said some states are going ahead but the overall situation is still in limbo with respect to the Kyoto Protocol.

Now that is a global perspective with respect to global warming, with physics of global warming and the various developed countries and Annex I, and as I said before, in terms of the learning of the amount of carbon dioxide in the atmosphere and the effects on climate change. If you deal with the small island developing states you will see that small island developing states, there are several initiatives, and I am sure—I do not know if the Government through the Ministry of Planning, Housing and the Environment is following these programmes that are available—not only there—

Sen. Dr. Saith: She would respond to you.

Sen. Dr. A. Nanan: Actually no, the person to respond to me is the Minister of Foreign Affairs. [*Interruption*] Well, with respect to this particular Motion, because the Minister of Foreign Affairs—no, no, I know the Minister of Planning, Housing and the Environment will respond.

But through the various treaties of the small island developing states and the links that are available, it would be the Minister of Foreign Affairs that would be able to work with the Minister of Planning, Housing and the Environment, to actually be the catalyst for these programmes and these opportunities; then the Minister of Foreign Affairs, together with the Minister of Planning, Housing and the Environment, should come to bear with the Minister of Works and Transport and the Minister of Agriculture, Land and Marine Resources with respect to the measures to be put in place to protect Trinidad and Tobago as a whole from the rising sea levels.

Mr. President, we have seen small examples of what rising sea levels could do. Some time ago we had high tides at Maracas Beach and the entire area was flooded out; with that small rise in sea level at that particular location, all the tables were covered and the entire car park was flooded. That is a small example of what can happen and there are other examples that one could point to.

In terms of the Minister of Agriculture, Land and Marine Resources, it is important that we do not have salt water intrusion in the agricultural lands because we would then have a problem in terms of agriculture. Even our aquifers, we have to be careful in terms of our water sources and salt water intrusion. There

are many policies that can be utilized in terms of the exchange that is available—how countries are coping with this particular situation. Because right now we are in the middle of an intense dry season, but we are very fortunate in terms of, we only have a few months to relax before the rains come, we hope. But with the change in climatic conditions we can have an extended period of drought and then we have to plan for other situations. So we might have to consider—based on the situation with climate change—storing water.

In fact, in other countries they have storage tanks under their homes, so when rain falls they would be able to catch it in large tanks because of the situation with poor rainfall. So, while we look at certain sea temperatures, we also have to look at climate changes, not only with respect to increased storm potential—and it is also important in the insurance industry, because a number of insurance companies are looking at risk taking with respect to—and the Government could look at that, Minister, with respect to giving incentives or looking at premium reductions to people who are taking measures like putting up storm shuttles or windows, or even increasing the building codes or whatever with respect to hurricanes, and giving an incentive to home owners to upgrade their homes to a certain level to withstand very high winds to some extent—even to people who are going to develop on the coastline.

Now, if you look at the physics and the science of waves and wind action, and the rise and fall with respect to the tides and the tidal levels, you would see that right here we have classic examples of erosion of our coastline, especially in the south western peninsula.

2.45 p.m.

It was happening on our east coast. It was happening so rapidly on our east coast that one was afraid that our road would have been completely taken over by the sea. But thankfully, there is a sea wall that is going up in that particular area.

Now, there are many theories with respect to rising sea level or the island sinking. Some will say that the tip of the island down in the south-west is sinking and that is why there is erosion taking place. But we still have to put our house in order. As I said before in terms of the approach, Barbados is way ahead in the small island developing states and their policy. We would probably need to have close collaboration with Barbados, in terms of how they are approaching that particular situation, with respect to rising sea level and the possibility of large hurricanes, and even the potential for large periods of drought and even preservation of drinking water in these particular areas.

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Mr. President, it is interesting when I talk about large hurricanes and forecasting. We have had no communication from the Government with respect to the Doppler radar that is in the Central Range, and that bothers me.

Sen. Dr. Saith: It is working.

Sen. Dr. A. Nanan: Because when I hear the Minister of Works and Transport talking about satellite phones— we do not have satellite phones in this country—and radar systems, it really affects me because that Doppler radar was supposed to be linked to the entire Eastern Caribbean.

Sen. Dr. Saith: It is working.

Sen. Dr. A. Nanan: But I am hearing from the Minister in the Office of the Prime Minister that it is working. So I take your word for that. But why is the Doppler radar not being utilized to give some comfort to the people of Trinidad and Tobago? Yes, it is working, but I have no idea.

If you look at other countries; if you look at Miami, you would be able to actually link with television stations to give you a Doppler radar effect that this is a large storm that is coming, with heavy rainfalls. Nothing is happening in that particular—we are not getting that kind of assurance from the Government.

I have a few minutes, so I want to go to the manifesto. [*Interruption*] The manifesto of 2000.

Hon. Senator: Change the picture. Change the picture.

Sen. Dr. A. Nanan: This is the 2000 Manifesto. This is the hon. Basdeo Panday, the former Prime Minister. The reason I went here—on page 30 of the manifesto, it talks about several pieces of draft legislation, because we were very concerned about the environment at that time. The Minerals Bill, the Shipping (Marine Pollution) Bill, Planning and Development of Land Bill, the Beverage Containers Bill, all those Bills, those pieces of legislation, where are they? The Minerals Bill, actually the United National Congress passed that one; the Shipping (Marine Pollution) Bill, that came before a joint select committee and remained there; the Planning and Development of Land Bill, that has never seen the light of day; and the Beverage Containers Bill, again, we need to get behind the Environmental Management Authority. I do not know where that Bill is with respect to the Attorney General, but those are the areas.

So, Mr. President, with respect to the environment, there is something I want to clear up while I am on that particular issue and that is, a report in yesterday's *Guardian* based on the Government to grab zoo land. That report said that

Tourism Minister, Adesh Nanan in July 2001, the zoo will be removed lock, stock and barrel to 40 acres of land in Chickland in Central Trinidad. I was not the Minister of Tourism in July 2001. I was the Minister of Tourism from 1999 to 2000, and that is completely erroneous. I never said that the zoo was going to be removed lock, stock and barrel. That is why when I asked the Minister today, he did not answer. So that is not true. The 40 acres of land in Chickland was a technology report that was being considered.

Sen. Dr. Saith: It was a good idea.

Sen. Dr. A. Nanan: Mr. President, as I close, I hope that this Motion would get the Government thinking in terms of their planning approach, and the Motion is saying: "immediately call upon the Government".

So, I thank you, Mr. President, and I beg to move.

Sen. W. Mark: Mr. President, I wish to second the Motion and to reserve my right to speak on this matter.

Mr. President: The Motion has been seconded by Sen. Mark.

Question proposed.

Sen. Corrine Baptiste-Mc Knight: I thank you, Mr. President, and let me thank the mover of this Motion for bringing this Motion to the Senate. It is a matter that is important enough for us to ventilate here in some fashion.

Now, climate change is inevitable. It has been going on without any fanfare for millennia, but it happens that as a result of, as my colleague said, the greenhouse gases caused by human activity, particularly in the last two centuries, the dramatic changes that have taken place, have triggered this sort of response to this supposedly natural phenomenon. Industrialization, deforestation, et cetera, have all contributed to this phenomenon, and as a result, there are various other climatic and economic aspects that have impacted on us. For example, the matter of acid rain is not a phenomenon that is strange to us, because some of us would realize that the paint on our cars would degrade and it is not necessarily on account of the sun.

There are increasingly violent storm, typhoon, monsoon activity throughout the world. There is the matter of sea level rise. Now, these things do affect us. How does this impact on us here in Trinidad and Tobago? I look around and I do not see too many people of my age here, but I certainly recall that in my childhood and youth, we were not subjected to 90° temperatures throughout the

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year and in what used to be the rainy season, almost every day, we experienced convectional rainfall immediately before or after lunch time. These are changes which under normal conditions we could not explain, and whereas they are recognized as changes by us, the elders, the young folk like some of you there, have no experience of anything else. This is a fact. We will note that our land mass has changed, even though our maps remain unchanged from the year dot.

Mr. President, I am pretty sure that again, in my youth, I have visited the lighthouse in Icacos. But in my current age, there is no lighthouse in Icacos. Something was pointed out to me, a decent swim away from shore and I was told that used to be the lighthouse. Now, this to me, gives credence to the conventional wisdom that for every one centimetre in sea level rise, there is the possibility of losing a metre of coastal land. So anybody who knows exactly how much land we have lost on that Icacos peninsula would probably be able to do the math and say how many centimetres the sea level has risen. As my colleague, Sen. Dr. Nanan noted, the matter of erosion is not foreign to us, because the shoreline is almost contiguous with the roadway on the east coast.

Now a sea wall is being erected, but is that enough, and for how long would that be enough? It means that thought has to be given to an alternative roadway to get to the south-eastern peninsula, and this is purely a matter of natural phenomena. There are other problems. Plant cycles have changed. Farmers will tell you that some of their crops come in earlier, some come in later. For instance, this year, normally around Carnival time pigeon peas and rice. This year, we have not had that much pigeon peas. Why? Is it because pigeon peas is related to pigeons? No! [*Laughter*] Is because pigeon peas is related to crops cycles which have changed.

Hon. Member: Cassava.

Sen. C. Baptiste-Mc Knight: No, cassava we are getting in little packs in the grocery now, frozen.

Sen. Browne: All year round.

Hon. Member: Imported.

Sen. C. Baptiste-Mc Knight: I buy the imported lot because I never learned how to buy fresh cassava. But, Mr. President, it is all well and good for us to try to concentrate on the Climate Control Convention, and the Kyoto Protocol, but I want to suggest to us, that we have to concentrate on what climate change is doing to our people here. We have got to ask ourselves very seriously, is dealing with

climate change as it affects us in Trinidad and Tobago, purely a matter for Government and governmental action? I want to suggest that it is not. Each and every citizen has a duty and a role to play in our own self-interest, and that Government has a role to play in facilitating, is obvious.

I would like in this vein, to introduce to most Members of this Senate, and I think perhaps with the exception of the Minister of Local Government, a local initiative that deals with the question of mitigation and adaption to climate change that is happening here in this country, that involves our youth, our children from primary school up.

3.00 p.m.

I am talking about a programme called Sandwatch. Now what is Sandwatch? Let me tell you exactly what Sandwatch says it is and I quote:

"Sandwatch seeks to change the lifestyle and habits of children, youth and adults on a community-wide basis to adapt to climate change by building ecosystem resilience and to develop awareness of the fragile nature of the marine and coastal environment and the need to use it wisely."

Where is this happening in Trinidad and why? As a result of a UNESCO sponsored symposium that took place in Tobago in 1998, the Caribbean students who attended that symposium were struck by the obvious degradation of the beach and coastal zone. They recognized that this was a problem that they shared being all island people and decided that they could do something about it and this was the genesis of the UNESCO Sandwatch programme.

By 2001, the programme was launched as a Caribbean initiative. Trinidad and Tobago was in the forefront of this. It is a project that is part of the Associated Schools Project Network, a UNESCO programme and it involves children from primary schools, secondary schools and the wider community.

Where in Trinidad was the impetus for this coming from? It started with Palo Seco, Point Fortin and Mayaro and while the secondary schools were a little less conscientious, it was the Mayaro coordinator, a gentleman by the name of Mr. Andy Paul, who believe it or not, I understand was a physical education teacher who pushed this at the Mayaro Primary School.

What was this programme doing? It took the children to the beach, they adopted Plaisance Beach as their laboratory and the children measured the beach. They measured longshore currents, saw the effect of erosion and it was not a matter of an outing for the children, this became part of their education, it was

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incorporated into their curriculum because it meant taking this information, collecting the data, analyzing it, doing tables, graphs, and preparing reports.

All of this has an impact on the children's normal curriculum; their math ability, their geography, report writing, I believe it involves their communication skills, and to bring it to the wider public, their community, it also involves little drama and skits.

This is the sort of project that is truly interdisciplinary and educational but because they were also involved in the beach cleaning activity it meant that they were sensitizing the community and gaining their cooperation in cleaning the beach because that is fundamental to maintaining a healthy beach or helping to restore an unhealthy beach.

A little later, I will tell you the effect it had on some of the students, but as the students from Mayaro Primary left the school, these same children going to secondary schools from North Eastern College in Sangre Grande to Cowen Hamilton and St. Stephen's in Princes Town remained involved in the project. So enthused were they, and, with their co-ordinator Mr. Paul they have moved from a primary school project into a community UNESCO club called the Mayaro Environmental Wave and it is this wave which literally spearheaded the expansion of this programme.

Right now, let me tell you which schools are involved in the project. We have Mayaro the Wave, Palo Seco is back there, Guayaguayare High, St. Joseph's Convent Port of Spain, Toco Composite, Mason Hall, Goodwood, Speyside in Tobago and Blanchisseuse Government Primary.

In addition to those, there are other schools in Rio Claro, Princes Town, Manzanilla and two other schools in Tobago; Bishop's High and Scarborough, negotiating to become part of the programme. Now, not only are they involved in the work—shall we say—of monitoring the beach, developments on the beach, uploading their data to the Sandwatch website, and involving the community but every year they have a Mayaro Sand Splash where they bring out the community, invite other communities to come and see what they are doing.

All of this is being done with minimal assistance. Of course, the Ministry of Education has co-hosted on two occasions; in 1980 and again just at the beginning of this year student exchanges with Brazil. What they are also doing is branching out into the mitigation activity.

They have the children interviewing the elders, people from 20 to 60 and discussing with them the difference in the climate, the difference in the extent of beach; having the children undertake to go home and for one week initially turn

off any light in a room they are not using, disconnect all computers and electrical appliances when they are not in use.

Now, this is a very simple but effective way of teaching a community to reduce its individual carbon footprints and this is what has to be done. If in Copenhagen, at the last meeting every government present had undertaken to meet certain goals or cut carbon emissions to zero, it would still take us centuries to roll back the sea level rise because what we have already done has so damaged and changed the atmosphere, that it is going to take centuries for the temperature of the sea to drop.

So it is not a matter of what governments do, because nobody from the Government comes into my house to turn on my computer or my light but if I can take an example from these little children and do this, I am contributing to my future, to their future and to that of the country.

Why do I get involved in a Motion that exhorts Government to take measures, to be involved and to implement its undertakings under Kyoto and the climate control convention? For the simple reason that I feel very strongly that this is an initiative that we must all make sure to spread throughout the country.

In order to do this, there are two things that I implore the Government to do. The first is to accelerate the appointment of the national co-ordinator for the Associated Schools Project Network (ASPNet). This was a request that UNESCO made in 2005 or thereabout. In 2007, there was a Cabinet decision to approve the post.

Mr. President, up to today, nobody has been appointed. I do not think that is good enough. The presence of the co-ordinator would spread the awareness of not only this programme, but all the other UNESCO educational programmes, specifically those for the Decade of Education for Sustainable Development that started in 2005.

Let us be aware that as a part of what started in Tobago there are now 40 countries worldwide, largely in the Caribbean and in the Indian and Pacific Oceans, 20 of these being small island developing states that are involved in this project that we should be the flagship for. It started here so let us take it, run with it and show the world what we can do; what we can do, what we can encourage and what we can support our children and communities to do. I would like to see this ASPNet coordinator before the end of this fiscal period.

3.15 p.m.

The second thing is to give specific support to this particular Sandwatch Programme to ensure that it can be replicated throughout the country. Because it

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is not limited to beaches; it involves river clean up; it involves a sea turtle study. Now our largest sea turtle population and related tourism sites are on the east coast that are endangered, because there is where we have our greatest erosion.

Let us do something about that. I know that a proposal was put to the Ministry of the Environment years ago and it was never even acknowledged. But I am an old civil servant so I know how those things happen. I feel sure that a new proposal will be submitted shortly because the whole situation has blossomed; it has changed but it is not going to be that expensive, because I am pretty sure that once it is adopted by Government, private enterprise will come on board and sponsor some of the schools, because the kits that the children need to do this research to get involved, are not that expensive.

Before I close, let me just read for you an excerpt from a report that was done by a 12-year-old—she was 12 at the time—Alana Stanley, who was a student of Mayaro Government Primary School. In this she wants to explain: "What Sandwatch means to me." At first she thought it was going to be very boring, but then she says:

"After my first experience many mathematical problems have become clearer to me and I now have begun to enjoy math simply due to my experiences in Sandwatch."

And we know we have a problem with children and math:

"Sandwatch has not only helped me in mathematics, but I have a better appreciation and a greater understanding of geography and science. Believe me, Sandwatch has helped."

This is a testimonial from a 12-year-old. Can you imagine having every primary school child exposed to a project like this, what it would mean to us? Can you imagine on the next World Environment Day, having Mayaro Sand Splash replicated on all the beaches of Trinidad and Tobago? Can you imagine the impact of having communities take responsibility for their beaches and maintain them in a clean and healthy fashion?

That is my plea to Government. Go outside of the box. Do not limit yourself to the recommendations of the Climate Control Convention and the Kyoto convention. Behave like a sensible Third World country and let your communities and children lead us to a healthier approach to climate control. Give the UNESCO commission the national coordinator and throw your support behind the Sandwatch proposal when it comes to you.

Mr. President, I thank you. [*Desk thumping*]

The Minister of Planning, Housing and the Environment (Sen. The Hon. Dr. Emily Dick-Forde): Thank you, Mr. President and thank you to Sen. Dr. Nanan again for a very interesting, relevant and timely Motion. I want to read the title of the Motion. It is very important:

Whereas Trinidad and Tobago is a signatory to the Climate Change Convention and the Kyoto Protocol and whereas global warming will cause sea levels to rise;

Be it resolved that the Government take immediate steps to protect the coastline from the said sea level rise and salt water intrusion of all agricultural lands.

I want to thank Sen. Baptiste-Mc Knight also for what I consider to be a very clear presentation on the issue and the two presentations together give us that global/local character which is very central to our understanding of climate change. Climate change is both local and it is global but it is even more challenging than that. It goes beyond the global and the local to include issues that are national, regional, economic, geopolitical and social.

In addressing the issues raised by the Motion and the debate that ensues, I will show how all of these things come together and how both contributions are accurate and very relevant to what we do. But I also want to show too, that the Government of Trinidad and Tobago, this Government is, as Sen. Baptiste-Mc Knight said just now, showing ourselves to be, what, a sensible Third World country. We are showing ourselves to be so and I hope that I can get through covering the issues quickly.

I want to just respond directly to the two issues raised by Sen. Baptiste-Mc Knight: to accelerate the appointment of the coordinator for the ASPNet schools project; it is a UNESCO project. We will have to look at that 2007 decision which I am not familiar with, so it may have been before this current administration. But we will look into it and I would speak, I am sure, with the Minister of Education—that is who most likely it would be—to have this advanced, because it is, indeed, in keeping with what the Government, through the ministry with responsibility for the environment is promoting.

The second one gives specific support to the Sandwatch Programme which Sen. Gronlund-Nunez showed me on the Internet that Trinidad and Tobago is listed under that Sandwatch—that international programme. It is, indeed, a very solid programme, directly linked into what the EMA is supposed to be doing with respect to educating the public and encouraging these types of

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things. And I like the fact that you ended on a very hopeful note that, indeed, you can see that Sandwatch will get a positive response this time, because of how things are blossoming and, in fact, your hope is not in vain; it certainly shall get a positive response so I look forward to it coming directly to me, eh, because you said you were a public servant, so you know what happens. Sometimes things do not come directly to the Minister for quite a while. So if you get it directly to me, we shall ensure that it is addressed.

So I want to take some time to address the issues raised by Sen. Dr. Nanan and then I have asked the hon. President of the Senate for permission to read some aspects of my response which gives very specific details to the Government's policy and programmes with respect to the issues that—I would have to say that he should have raised based on the title of his Motion. He raised quite a lot of issues—very important—but the issues of salt water intrusion and the agricultural issues, were not directly addressed by Sen. Dr. Nanan, but certainly I shall address those.

But in the mode of the debate, I want to address some of the issues that he raised and very properly raised as well. But I want to give the Senate the benefit of this Government's experience and exposure to the international debates and participating in, at the international level on some of the issues, as well as to respond to Sen. Baptiste-Mc Knight on this Government's involvement in local activities and to show how, perhaps, what we are seeing is a building up of momentum to where we really need to be.

It is a very difficult thing to get people to build a momentum just like that. You cannot just issue a law or start up a programme and you get momentum, because Sandwatch sounds so exciting, you are surprised that it has not had wider participation. So we know that human nature is such that you need to be building a momentum in so many different quarters in order to get to where you want to.

One of the points that came out from Sen. Dr. Nanan is a very important point to address, where he repeated—and I think it was one of the central themes of his presentation—that the developed countries have reneged on their responsibilities under Kyoto. That responsibility is very important as one of the issues that we mentioned and we keep hearing all the time that whenever we talk about climate change at the international level is this issue of common but differentiated responsibilities. I would come to that in a little bit. But what that speaks to is that there has been a recognition which began since the UN Convention on climate change, that developed countries had all of these centuries, from the time you began the corporate form of business in particular, and the industrialization of

nations specifically too, that developed countries were able to pollute. That is the argument. I do not totally agree with it, but I just want to explain it a little bit; that developed countries had their time to pollute to the max. Developed countries were able to use coal and all sorts of things and pollute and as Sen. Baptiste-Mc Knight rightly said, climate change is a natural phenomena which then became exaggerated as we industrialized.

As we industrialized, we had even more greenhouse gases going into the air than would naturally be occurring and so we have triggered a problem which has now become one that is very difficult to get around because, as I said, of the global, regional, local, national, economic, geopolitical, social and other dimensions to the problem.

So the common but differentiated responsibilities, that doctrine, that whole philosophy that underpins the global convention on climate change, is held on to tightly by developing countries and is acknowledged and accepted by developed countries but not in term of their actions. The developed countries have not acted out their obligations in the way in which they should have. And while Sen. Dr. Nanan has identified the energy lobby as being the main reason for that, my experience and this Government's experience at the international debates, has been that all of these countries—and we had quite a lot of direct interaction with the Prime Ministers or the Minister for the Environment for all of these countries: Australia, Canada, US, China. Well, I will say China and India only because of their high emitter status. Who else we spoke to directly? The UK, and then we had meetings with smaller islands and so on.

The big issues, really, are not so much the energy lobby in a country but it really is that national concern for the development priorities they have set for themselves. Having set development priorities for themselves and looking at what they are required to do under Climate Change Convention, especially specifically under Kyoto Protocol for the Annex I countries, which are those developed countries that have signed on and ratified and so on, they are saying that the cost to them—and when they say cost, they do not just mean cost in dollars—is too high. They are saying that they cannot meet those obligations.

3.30 p.m.

The Senator talked about Norway. Norway is quite unique in that it has had a sense—I do not know the details; but it focuses on its developmental priorities. It is one of the best approaches you can find in terms of national approaches to development and it is one that needs to be studied. They do not have that concern

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about being one of the top political powers in the world and that has a critical part to play in the positions taken by countries, especially at Copenhagen.

We observed it; we were involved in it and saw that it is more than just economics. Economics is important because they are saying that they cannot afford the kinds of investments they need to make. Also, a lot of these countries, even with all the research they have done and the renewable energy programmes and projects; even with the financing of carbon reduction projects in developing countries, many of them have this view that if they were to take on the climate challenge in the way they need to, they would be reversing their developmental position.

If you think about Australia, a large part of its energy comes from coal—we found that out in our bilateral discussions with them—and in order to replace that, the level of renewable energies they will have to invest in is tremendous. China is the same. There is a heavy reliance on coal.

We saw recently—I think it is through Georgia, the former USSR—that China has been able to access natural gas to do some of its industrialization and that will certainly reduce its carbon emissions. Certainly, the reliance on coal and energy sources has a lot to do with both the economic development priorities and certainly on people wanting to be on the world political stage. A lot of what we saw in Copenhagen had more to do with those things than any energy lobby. There were bigger issues involved. So it makes the climate challenge, as a global issue for addressing, even more difficult. You cannot reduce it to any one small issue.

The Senator kept repeating how very far ahead of us Barbados is and they are not. I will give an example of where we are with respect to being able to access a CDM project. I believe we will be the first Caribbean country to be ready—and it is a big one; it is the Nariva Project.

Today, in the Ministry of Planning, Housing and the Environment, we, the executive management team, would have considered in detail advancing that project to the stage of being funded by the Green Fund. We are very close to doing that. Once that is done—I will give a little more detail—the World Bank has developed countries lined up to fund that project beyond what is being funded right here in Trinidad and Tobago.

We do have a greenhouse gas inventory in Trinidad and Tobago. The second one was taken and the results came in recently. We are using those results. I have not seen all the results, but I have seen some of the details and we are using it now to devise our low-carbon strategy. We are using the same approach taken by Singapore to come up with their low-carbon strategy.

I am trying to address most of the things the Senator raised and then I will give a comprehensive response to where we are going.

The Senator gave a lot of examples: Germany, Canada and so on, where they had all these Bills or Motions, plans and commitments and have never fulfilled them. As I said, this is more complex than just the energy lobby. Similarly for the US. That was the reason the US never got involved in the first place; because of their concern for what it would do for their position globally, the geopolitics.

This is the one I want to address. You tried to school us in a whole-government approach. We are already there. The Ministry of Foreign Affairs works, not just closely with the Ministry of Planning, Housing and the Environment, but with the Office of the Prime Minister and the Ministry of Energy and Energy Industries. The Ministry of Foreign Affairs is the catalyst and works directly with all of us.

When we went to the UN Climate Change Conference in September, a unique one where they had 180 leaders of the world; when we went to Copenhagen, the Ministry of Foreign Affairs was well represented by the Minister in New York, as well as by senior staff members from the Ministry of Foreign Affairs in Copenhagen. The climate change discussions are pursued at the technical level by the Ministry of Planning, Housing and the Environment, but the ongoing conversations happens through the Ministry of Foreign Affairs, by their permanent representative to the UN, both in New York and Geneva.

So, there is always that continual discourse and interaction. It is a whole-government approach. When we talk about climate change in terms of renewable energy development, that is the Ministry of Energy and Energy Industries. The work with respect to the compressed natural gas as an alternative fuel versus the more polluting other fuels we use, again, it is the Ministry of Energy and Energy Industries. There is no siloing and the Ministry of Planning, Housing and Environment's focus is really policy to be implemented throughout the Government and throughout the country.

I cannot answer the insurance matter. I would have to speak with Minister Browne. I think that this already exists where, once people put in certain measures, there will be a reduction in their premiums. I cannot understand the Doppler thing, but I am sure I heard Sen. Dr. Saith answer.

The Beverage Containers Bill—very important. When I came in as Minister, we were close to the Beverage Containers Bill being taken to the Parliament and I requested that we have one last stakeholder meeting so that I could understand the

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issues. When I first came to the Parliament, I heard how Sen. Mark would castigate Government for not speaking with the stakeholders, so I said that I would speak to the stakeholders myself before I came to the Parliament with the Bill.

When I met with the stakeholders, they were not happy at all with the Bill and so, after further discussion and linking up with the Ministry of Local Government, we determined, through dialogue with the stakeholders, Sen. Mark—take note of that—that a waste resource management Act was what the country needed, rather than a Beverage Containers Bill, which dealt with just one waste stream. We will now come with a comprehensive bill that deals with all of the waste streams and addresses the issues comprehensively, both from the Ministry of Local Government's point of view and from the Ministry of Planning, Housing and the Environment.

So right now, we have consultants finalizing the policy and we are going to get to the level of finalizing the Bill. In fact, the Minister of Local Government has implemented a lot of the aspects already and you can see it already in a cleaner Trinidad and Tobago.

It is my understanding that the Planning and Development of Land Bill was thrown out a long time ago; before me. That was not even put before when I came. I do not know where you dredged that one up. I do not know where that one came from, Sen. Dr. Nanan. It was thrown out long before me.

I want to go through, in some detail, a lot of the issues that would put some context around this and, more specifically, speak to the Government's approach to addressing these issues. We will address, even more directly than Sen. Dr. Nanan, the issue of the agricultural sector. One of the things we will show is that you cannot use a sectoral approach to address climate change issues, even climate change impact that is specific to the agricultural sector.

As we have heard from both Sen. Dr. Nanan and Sen. Baptiste-Mc Knight, there is a need to be very comprehensive in our approach to dealing with climate change and that is the approach this Government is taking.

Mr. President, I would like to speak generally about climate change at first. I will not go over the issues that Sen. Dr. Nanan and Sen. Baptiste-Mc Knight gave us—real good expositions on the issues—so I want to look specifically at how the Government is addressing this, but I would certainly have to go through some aspects of the international approach to it.

We have heard, to some extent, that climate change is recognized globally as the single environmental issue of the 21st Century that poses unprecedented threats to mankind. One of the things we have yet to understand in the world—if we really understood it, we would not have had the outcome we had in Copenhagen—is that there are islands in the world that have begun to disappear.

One island, in particular, Tuvalu, is actually trying to find somewhere else to relocate all its citizens because it has had to relocate its citizens from the coastal areas already. The island is so small that the whole island is almost like a coast now and there is a need to relocate. We were told by the Tuvaluans that they had asked a very large country for an area for their citizens to relocate and they were turned down.

It is a serious problem. It is no longer a myth and, despite the conflicts we are seeing in terms of the science around climate change—because we are hearing a lot of stories about scientists telling lies or exaggerating and people resigning—nonwithstanding that, we are dealing with a very serious problem.

I want to dovetail a little. Sen. Baptiste-Mc Knight said clearly that her own experience is that we have a changing climate; not just in terms of experience of the climate, but also a changing physical environment. One of the things I had asked when I came in November 2007 was that there be a narrative from senior citizens of how they have experienced change in their climate, but we have not been able to get that off the ground. We are going to push even harder now to get it because it is a critical aspect of understanding climate change in our own nation and to put that together with the hard science that tells us about the temperature rises and the projections for sea level rise and so on.

It is important to understand that those local understandings that were clearly put out by Sen. Baptiste-Mc Knight just before are critical to our understanding and for our determination of how we adapt to climate change. Understanding the problem and how it manifests helps us to figure out how to adapt as well.

With respect specifically to the Motion, one complication of the complexity of climate change is that traditional approaches to address global environmental issues, which have often focused on several approaches dealing with the agricultural sector; dealing specifically with coastal zones and disposal of wetlands as separate sectors; that sectoral approach does not fly in a climate change context, which we understand now to be an important broad context.

Sen. Dr. Nanan: When I made reference to the Barbados strategy, I was making reference to the Barbados Programme of Action of the Sustainable

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Development for Small Island Developing States. That particular programme, together with the Mauritius strategy, is the model for implementation.

Sen. The Hon. Dr. E. Dick-Forde: Mr. President, that programme is not Barbados' programme; it is the Small Island Developing States Programme, which was established in Barbados. When you speak about the Barbados programme of action, it is the programme of action for all developing small-island states; it is not Barbados'. It came out of a conference held in Barbados and we adopted that model.

3.45 p.m.

We adopted that model. We have gone beyond that and I will show you. First of all, we cannot use sectoral approaches anymore. We are not saying that you ignore the sectors, we are saying that sectoral approaches must be in tandem and in sync with a wider context approach within the context of climate change and I will show you in a little bit. The sectoral approaches are not clearly applicable to a complex problem as climate change, which transcends bio-physical impacts. We must understand this as we move to provide solutions to reduce the negative impacts of climate change on different sectors of our social and economic landscape.

One of the examples I can give you is that in developing the draft climate change policy, which should be going out to the public in the middle of March, to begin consultations, we took cognizance of all the other policies that were existing. I would mention a little later, the climate change policy which will be discussed with the public in conjunction with two other important policies. I want to get the exact names of them. It has to do with the National Forest Policy and the Protected Areas Policy. We are not doing the climate change policy in isolation. Those two policies were under construction even before the climate change policy. When we were doing the climate change policy, it became clear that we had to look at all the existing policies, whether they had anything to do with the environment or not, to see how the climate change policy might impact those existing policies or the draft one.

In conjunction with the Ministry of Agriculture, Land and Marine Resources, we are going to be looking into the policies that relate to forest—I cannot find the exact names, so I would get to that eventually. I think it is the National Forest Policy and the Protected Areas Policy. Those are going to be done in tandem. We are saying that there is a wider context to understanding how you do this, rather than talk about it from a sectoral point of view, which is how the Motion was titled, but not presented.

While climate change has been naturally occurring, as we have said, it is also now generally accepted, based on overwhelming scientific evidence from the Intergovernmental Panel on Climate Change that the current accelerated rate of observed climate change is being caused by human influence through the increased emissions of greenhouse gases like carbon dioxide. We have heard very eloquently from Sen. Dr. Nanan, the methane issue as well.

There is, therefore, a distinct human component to the accelerated rate of climate change. As Sen. Baptiste-Mc Knight has said, there is a need for a specific, comprehensive and sustained human solution to the problem; human involvement. Everything we do has to change. I do not know if people have seen the inconvenient truth. It speaks to our individual responsibilities to addressing climate change.

The Fourth Assessment Report of the Intergovernmental Panel on Climate Change projects that global temperatures will rise by 1.1°C to 6.4°C over 1990 levels, while global mean sea levels are projected to rise by 18 to 59 centimetres by around 2100, depending on future scenarios of varying global emission levels. What that means is when we talk about future scenarios of global varying emission levels, the extent to which we as citizens of the globe can actually come to an agreement to cap our emissions.

I heard Sen. Dr. Nanan talk about the 380 parts per million; the current level. I think it has gone up to 389 parts per million by volume, in terms of the atmospheric concentration of greenhouse gases, but that 389 or the 380 as you have said, that atmospheric concentration is actually not seen by the developed countries as the cap that they should be aiming at. They are seeing 450 parts per million, which you clearly said is the maximum that can be tolerated. That is what the developed countries are saying they can meet, in terms of the economics of dealing with climate change. That is why we had an impasse between the developing countries and the developed countries for so long and it continues to be a concern. Four hundred and fifty parts per million by volume is a very dangerous level for greenhouse gas concentrations in the atmosphere.

We are seeing that these projections for global temperature rise and sea level rise are very, very serious and actually speak to the end of some of the islands that we know and maybe some of the coastal areas of non-island states like Bangladesh, for example. When Bangladesh was here at the Commonwealth Heads of Government Meeting, in the deliberations the Prime Minister of Bangladesh was very, very vocal, in the concern that Bangladesh has actually

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been losing a lot of its coastal areas and people had to move away from those areas. It is not just islands we are talking about that are under threat and that are actually currently experiencing these issues.

I want to talk again about the reports from the Intergovernmental Panel on Climate Change (IPCC). It is projected that for the next two decades, a warming of about 0.2°C per decade is projected. That is quite a lot. Even if the concentrations of all greenhouse gases and aerosols had been kept constant at the year 2000 levels, a further warming of about .1°C per decade would be expected. It means that we have already generated so much, in terms of the greenhouse effect, that it is not going to reverse. It is still going to be an increase, even if smaller than projected; if things change. If things do not change, there will be an increase in temperature over time.

Consequently, temperature projections depend increasingly on specific greenhouse gas emission scenarios in the future. That is what we committed to United Nations Conventions, whether overtly or by ignoring the problem. Because we commit either to reducing or we actually, by doing nothing, commit to increasing. That is what actually happened after December 2009 in Copenhagen. By not agreeing to anything specific—I am not dogging it because I do agree that what happened was important because of where things were and I would explain a little bit—or specific targets, we have actually agreed to continue, for a little while, by just continuing business as usual. What was agreed in Copenhagen was very important, because it brought the largest emitters to the table, those who were not there before: India, China and the United States.

One of the problems with the Kyoto Protocol—I think Sen. Dr. Nanan seems to like the Kyoto Protocol because he wants everybody to commit it to—is that it had flaws. It was flawed in that the United States did not sign on and in separating Annex I countries, which were the developed countries, saying that developing countries have no obligations, then the largest emitters who—if you get China, India and the United States together and, as you rightly said, all the European countries, that is over 50 per cent of the global emissions that can be addressed. Therefore, the issue of not having those people on board means that your efforts would be almost like in vain. That is why some countries do nothing and some countries work hard.

The Maldives is close to being a carbon-neutral society. The Maldives is small and they are doing it more—I should not say so—both symbolically and in desperation to show the rest of the world: “You can do it and you can save the islands.” What you are seeing in the lack of firm commitments is that we are

committing to business as usual, which is very dangerous for a number of countries. It means that the globe is committed to a change in the climate. We are committed to climate change through our inactions or through our actions. Climate change is a present and continuous phenomenon.

I would now like to focus a bit on the projected impacts of climate change on Trinidad and Tobago. The climate models project that for our nation, Trinidad and Tobago, the mean temperature or annual temperature is projected to increase by 0.7 °C to 2.6°C, which is below the global increase, but still increasing significantly. This will be by 2060, also 1.1°C to 4.3 °C, which is, again, just below the global levels, by the 2090s. Projections of mean annual rainfall indicate decreases in rainfall for Trinidad and Tobago. It would not be for us alone. As you know, many other islands in the region are experiencing it as well and it is very, very difficult to address because of the, I think, technology, and a number of things. We are surrounded by water and we, therefore, need to focus a lot on desalination. I understand there are serious droughts in other islands, particularly in Barbados.

Sea levelling in this region is projected by climate models to rise up by to 0.56 metre levels by the 2090s, which is relative to 1980 and 1999 sea levels. That is a significant rise, .56 metre. In fact, the ambient temperature in Trinidad and Tobago has been estimated to have increased, because we were talking about projections before, by 1.7°C over the past 40 years. Sen. Baptiste-Mc Knight's local knowledge bears this out using data from the meteorological services while sea level rise has been estimated between 1.6 and 3.0 millimetres, I wonder if that was millimetres just now, per year, over the period 1984—1992. I would have to double check that.

As a small developing state, Trinidad and Tobago is particularly vulnerable to the adverse impacts of climate change, such as those related to temperature increases, changes in precipitation and sea level rise.

Specific sectors that are likely to be impacted on—the reason we go into specific sectors is to really show that it is not just agriculture; you have to look at all the sectors and see how they interlink. For this Government, the interlinkages really focus on how it is going to impact the average person and how can we mitigate against that in particular. For the agricultural sector, projected increases in ambient air temperature are likely to result in increased aridity of soils and decreased crop yields due to intolerance of crop varieties. Projected decreased rainfall is likely to result in increased aridity of soils again and decreased crop yields, due to less irrigation water availability. Projected increase in sea level is

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likely to result in inundation and flooding of coastal areas and salinization of productive soils, leading to decreased crop yields and a decrease of available areas for agricultural production.

In terms of the water resources sector, the temperature increase would result in a loss of available surface water as a result of increased evapotranspiration, again, this is linked to temperature increases, among other things, and decreased precipitation of rainfall resulting in reduced percolation and recharge of groundwater reserves in aquifers and the reduced availability of surface water and potable water.

As I continue on the impacts of climate change on specific sectors, I emphasize the point that the climate change challenge requires a comprehensive holistic approach to adapt and to mitigate.

On human health, projected increases in ambient air temperature are likely to result in the increased spread of vector insects due to increased humidity, giving rise to favourable conditions for increased vector populations. Projected decreased precipitation or rainfall is likely to result in reduced availability of potable water, which can have further indirect impacts on food availability. Projected increased sea level and precipitation intensity is likely to result in an increase in the incidences of waterborne diseases in permanently or often flooded areas.

We have the effects on human settlements: projected increase in the intensity or heavy precipitation events can result in increased incidences of flooding in flood plains, which can have adverse impacts on human settlements and health, resulting in disruption of settlements, commerce, transport and towns and villages, due to flooding. This can further add pressures on urban and rural infrastructure and loss of property. We have seen it in Trinidad and Tobago, but not at the extent in which it is projected. Certainly, we saw recently in the news where Madeira, just off Portugal, experienced a very intense and apparently unusual precipitation and very, very serious flooding to the extent that they are saying that the landscape has been altered in Madeira. It is a very, very serious thing that we are seeing. Obviously, it is something that they had not experienced before.

4.00 p.m.

The final sector we mentioned is coastal zones. Climate change impacts in the coastal zone are expected to be multisectoral, based on the fact that in small island states there are many different sectors operating on the coast. There are many different activities on the coast; tourism, fisheries and a number of other things, including even basic administrative offices and so on, because of the smallness of our islands.

Sea level rise: Again, increased inundation, increased erosion and loss of coastline agricultural lands due to soil salinization and, again, from temperature increase, we can see effects on coral reefs further leading to loss of fisheries and increased erosion.

Mr. President, the reason we are pointing out all of these things is not for doom and gloom, but to highlight that having understood the problem, as a Government, we are providing solutions that are comprehensive and integrated across ministries, not just the Ministry of Planning, Housing and the Environment, but anyone of the Ministers involved in these things could have answered this, but because we deal with policy, we can speak specifically to it.

The adverse impacts of climate change are therefore not only sectoral and cross-sectoral, but impacts on one sector can also have secondary and tertiary impacts on other sectors. So in our solution finding, we are looking at this in a very comprehensive manner.

The strategies to reduce greenhouse gas emissions to combat climate change also place strain on the agricultural sector. We all know about the renewable energies drive where the focus has been on biofuels which has taken away agricultural lands from food production. It is not one of the solutions that we have at the front of our minds when we think about renewable energy in Trinidad and Tobago, because we have that equally pressing concern about food security so, therefore, you cannot take away agricultural lands to do biofuels for renewable energy. We have to explore other sources for renewable energy.

A fact that is sometimes overlooked is that studies indicate that the agricultural sector accounts for 14 per cent of global greenhouse gas emissions. So even in the practice of agriculture, you have global gas emissions. So global gas emission is not something that we have to say, well you have to stop all of it. In fact, as one very learned person had said, we emit CO² when we breathe out and, therefore, we cannot say we are going to do carbon neutral. We have to breathe and we also have to have agriculture along with other activities. You cannot stop life. The greenhouse gases emanate from soil, rice cultivation, livestock manure management and other agricultural practices. However, the agricultural sector offers avenues for potential abatement of emissions in the form of improved grassland management; land restoration; cropland management and livestock management.

The international community has recognized climate change as a common issue for mankind as far back as 1979. We heard all about the Kyoto Protocol, so I

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would not go into that again, but I think where we want to get to is the land management approaches that we have included in our approach to climate change; the whole focus on land management.

So, it must be mentioned that the salinization of agricultural soils as a result of sea level rise is not the only threat to agriculture and that adaptation options responding to this threat cannot be in isolation. I think we have made that point clear. Adaptation options in the agricultural sector also involve modifying existing unsustainable practices, such as slash-and-burn, squatting and other measures related to land management.

In order to address some of these problems, a national action programme to combat land degradation has been developed. This programme is an integrated and systematic approach for correcting, mitigating and preventing the problems of land degradation over the short and medium term, in order to promote sustainable use of land, including agricultural purposes.

Rising sea levels are also expected to affect coastal areas, exacerbating erosion and increasing inundation. To this end, the Government is presently engaged in various projects to address the protection of the coast which can be adversely affected by sea level rise and exacerbated coastal erosion as a result. Certainly, therefore, agricultural lands in coastal areas are covered by such projects.

Through the Drainage Division of the Ministry of Works and Transport, coastal protection projects have already been completed, and we would have informed the honourable Senate about this in a response to a question from Sen. Dr. Nanán, including the Manzanilla coastal protection works which is a 2.3 kilometre long rubble mound revetment along the South Cocos Bay between the Nariva River and the Ortoire River.

The other two phases of the projects to protect the coast include a beach nourishment scheme and the construction of offshore breakwaters. Again, in response to a question from Sen. Dr. Nanán, this Senate would have been advised of projects currently under way which include the North Coast Study. The purpose of this study is to develop coastal protection works along the coastline between Blanchisseuse and Toco. Currently, the modelling exercise is under way for the design of the structures. Mr. President, the Government of Trinidad and Tobago recognizes the need for enhanced—

Mr. President: Hon. Senators, the speaking time of the hon. Senator has expired.

Motion made, That the hon. Senator's speaking time be extended by 15 minutes. [*Sen. Dr. A. Nanan*]

Question put and agreed to.

Sen. The Hon. Dr. E. Dick-Forde: Thank you, Mr. President and Senators and a special thank you to Sen. Dr. Nanan. I want to wrap up, but I want to make sure that I put on the Table what this Government is doing with respect to the issues raised and the complexity of climate change.

The Government recognizes the need for enhanced food production and food security in the face of potential climate change impacts on the agricultural sector. Accordingly, the Government is ensuring that in establishing mega farms and utilizing the former Caroni (1975) Limited lands for agricultural production, that adequate consideration for climate change impacts is taken fully into account and includes a strategic environmental impact assessment of these lands for future agricultural production. The mega farm concept is aimed at concentrated agricultural activity and, in so doing, centralizes the activity away from the coastal agricultural lands that may be potentially vulnerable to salinization arising from sea level rise.

Mr. President, it would be useful to note also that some impacts are irreversible and unavoidable and, therefore, protection may not necessarily have the effect that we are seeking. Rather, proper planning for adaptation, so as to avoid costly maladaptation, is what is required and is the route that the Government is taking through the climate change policy.

Mr. President, initiatives aimed at developing a comprehensive climate change policy that will address both mitigation and adaptation has been approved by Cabinet and, as I said, we are going to consultation in the middle of March with the public. We know that there is quite a lot of information out there that we need to incorporate into that policy.

The development of a carbon reduction strategy aimed at the transportation, industrial and power sectors: Such a strategy is expected to involve an analysis of the policy and legislative implications relevant to these sectors with a view to arriving at recommendations for implementation of identified strategies, recognizing that implementation of actions would need to take into account the fact that no one technology can be universally applied, and that the industrial sector in Trinidad and Tobago is largely driven by the private sector. We will be looking at linking with the private sector through the movement of corporate

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social responsibility which the Ministry of Planning, Housing and the Environment has already embarked on in order to get that buy-in and that cooperation to be able to achieve these things.

I mentioned the increased use of compressed natural gas which is also a Government policy that is being refined and enhanced, and would soon be presented to the national community showing how we are intent on reducing greenhouse gas emissions from the transportation sector. The greenhouse gas inventory shows that the transportation sector is one of the major sectors for greenhouse gas emissions in Trinidad and Tobago.

I am going to come to a close by just mentioning quickly some of the other things. The solar street lighting initiative is being well developed and we are hoping to roll that out, not just street lighting in the general areas, but also we are looking to incorporate it into new housing developments as well and that is under way. We have some new sites under planning in four housing developments, and we are going to make sure that we incorporate a climate friendly approach to those housing solutions.

The draft air pollution rules, we are working to bring that to a close and there are some outstanding issues again with stakeholders that we are going to address but, in the meantime, we are seeking voluntary cooperation to address the issues.

Carbon dioxide capture and storage in geological formation is one of the technologies that has the most promise for reducing massive amounts of greenhouse gases from the atmosphere, but it is not a fully developed technology. In Trinidad and Tobago, we are seeking to embark on a project through the Ministry of Energy and Energy Industries to see how we can advance the technologies so that it actually works, because for a lot of the countries especially, Australia for example, one of their main concerns, as I said, was the cost of meeting their obligations under, not just the Kyoto Protocol, but any convention and any agreements going forward. For Australia and Canada, two countries that you called, they are both part of the Global Carbon Capture and Storage Institute. The development of this technology will be very important for them to meet their emission reduction targets.

We are also targeting emission reduction from deforestation which we have to say is a great challenge presently with the dry season and the fires. Yesterday, the Director of Town and Country Planning and I spoke and she is to begin immediately to put something in place and to link with the Ministry of Agriculture, Land and Marine Resources to begin to have seedlings ready to replant those areas that would have been removed through fires recently.

Mr. President, I think I can close off here by saying that, as a Government, we are very aware of the complexity of the climate challenge, and we are very concerned to find many ways to involve individuals, citizens and especially children. Through the EMA, the Ministry and the Government have engaged with schools in programmes and projects, but none as demonstrative as the Sandwatch that we heard of today. The EMA projects tend to be like skits and sounds and so on, “envirolog”, but what we see in Sandwatch is a more sustainable project that actually can become a part of the curriculum. [*Interruption*] It is a part of the curriculum of the Ministry of Education, so we need to make sure it is spread throughout the country. We give the undertaking that apart from what we have already done within a comprehensive approach to climate change, and also to ensure that agriculture is protected, we are also going to ensure that the two issues that were raised by Sen. Baptiste-Mc Knight are going to be acted upon quickly.

So, Mr. President, with those words, I thank you. [*Desk thumping*]

ADJOURNMENT

The Minister of Energy and Energy Industries (Sen. The Hon. Conrad Enill): Mr. President, I beg to move that this Senate do now adjourn to Tuesday, March 02, 2010 at 1.30 p.m., where we will debate Bills Nos. 1 and 2 on the agenda.

Mr. President, you would recall on the last occasion we had indicated that we were going to conclude the debate on the Bill to amend the Evidence Act, Chap. 7:02, however the Attorney General had to travel. So, we would simply pursue that on the next occasion. We will debate the Bill to amend the Evidence Act, Chap. 7:02 and we would begin and conclude the Bill entitled an Act to amend the Civil Aviation Act, Chap. 49:03 by the Minister of Works and Transport.

Mr. President: Hon. Senators, before I put the question, I have granted leave for a matter to be raised on the Motion for the adjournment by Sen. Dr. Adesh Nanan.

4.15 p.m.

Environmental Police Unit

Sen. Dr. Adesh Nanan: Thank you, Mr. President. In the manifesto of 2000, the UNC, on page 30—I will read:

“This commitment to the enforcement of environmental laws received a much-needed boost when the respective Ministers responsible for the environment and national security respectively, collaborated with the EMA to establish a Special Environmental Police Force, the first of its kind in the Caribbean.

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This Special Unit has been visible on our roads enforcing laws such as those dealing with air emissions and littering.”

Mr. President, under the Environmental Act there is a provision for environmental police and what we saw in 2000 under the UNC—in fact, this particular unit was very visible. This particular unit was made up of one sergeant, two corporals and constables. So, that particular unit at the time was a very forceful unit under the Commissioner of Police and we saw results. In terms of the Environmental Act, this environmental unit and these police officers, specifically environmental police, patrolled the highways; they enforced the Litter Act and they also dealt under the Motor Vehicles and Road Traffic Act with reducing smoke emissions. They also dealt with the policing of illegal dumpsites and they were dealing with illegal quarrying, and of course they monitored compliance via the certificate of environmental clearance.

The statistics would show that a number of persons who violated littering, and having illegal dumpsites and illegal quarrying; a number of citations were given, especially on patrolling the highways. Now, I saw recently with respect to this particular unit that 12 Special Reserve Police Officers have been appointed to form the Environmental Police Unit. Now, these 12 officers would be policing the whole of Trinidad and Tobago, and it seems to me that this is not enough, and with respect to reserve police officers, the initial unit had that kind of force under the Commissioner of Police, because there is a sergeant heading the unit and there are two corporals and the rest are constables.

I think this particular unit that is set up now under the Environmental Management Authority has 12 Special Reserve Police Officers. I do not know if that is just a smokescreen. I am not saying that to give some comfort to the citizens, but I think if you are going to deal and police the environment—because under the Environmental Management Act you need to have some force, because these police officers are going with EMA compliant officers in certain areas where the EMA compliant officers would point out infringements of the Environmental Management Act, whether it be littering, whether it be illegal dumpsites, illegal quarrying, and I saw recently with respect to illegal quarrying that a number of persons were charged, said the Minister of Energy and Energy Industries. I am not saying that you are misleading the public; I do not know if that took place with respect to, or if it is just statistics being given.

Sen. Dr. Saith: [*Inaudible*]

Sen. Dr. A. Nanan: Well, we knew that we saw these police on the road. I cannot say about the existing highway patrol or the non-existing highway patrol, but at that time we were seeing the highway patrol existed as well as the environmental police.

They had vehicles labelled “Environmental Police”, if I remember correctly and they were very visible on the nation's highways and it gave comfort to the citizens. In fact, if these environmental police are on the highways I think it would even control the reckless driving on the highways.

So, I call upon the Minister of Planning, Housing and the Environment and the Minister of National Security to look at this particular structure again with respect to this unit and the reserve police officers, because we need something more concrete. In the Environmental Management Act there are powers out there for these police officers.

With respect to noise pollution and even air pollution when it comes on board, and water pollution rules, these compliant officers will need to be going around to ensure that people are not breaking the law under the Environmental Management Act.

So, this is in the context that I raise this Motion in terms of the environmental police and the environmental policing.

I thank you.

The Minister of Planning, Housing and the Environment (Sen. The Hon. Dr. Emily Dick-Forde): Thank you, Mr. President. I will be very short because the issue would be, for me, to really get a proper understanding of the extent to which the environmental police were as visible as Sen. Dr. Nanan said they were at the time that he was talking about.

Over the years in Trinidad and Tobago people would have noticed that the issues continued and they actually got worse, especially when you talk about the highways and so on, because we have had a massive increase—in fact, some people say over 100 per cent increase—of vehicles on the road. We have had a great increase in a number of the issues, in particular, the laying of the Noise Pollution Rules and the Water Pollution Rules; we have a greater number of issues that the environmental authority is dealing with, but the extent to which the environmental police were as visible as Sen. Dr. Nanan said, I cannot confirm that at all; in fact, I do not accept it.

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I think one of the problems that we have in Trinidad and Tobago is an issue of enforcement and we have recognized that. The enforcement issue with respect to development, with respect to environmental issues and our approach to enforcement, is not just to increase the number of Special Reserve Police Officers out there on the road, because the training of these policemen for—based on the Environmental Management Authority’s reporting to me, requires that we actually might be taking away a number of resources from national security along with other issues. So a more comprehensive approach to enforcement is being proposed—and it is under construction right now—that would address the issues raised by Sen. Dr. Nanan, both for enforcement of environmental issues as well as developmental issues, and it is under construction.

The EMA reports to me that they are satisfied with the activities of the environmental police—I want to make sure I find the areas here—out there doing what they are supposed to do. They actually gave me a report here on officers who arrested individuals and impounded dump trucks, which means they continue to go after illegal dumping, and an excavator who was involved in illegal mining in a particular area. The actions were taken pursuant to the State Lands Act. Two persons were arrested also by the environmental police after officers found them to be quarrying without the required licence. So they are showing me that even recently they continue to have the environmental police out there.

I have some other reports, Mr. President. They initiated investigation into 54 noise complaints, that is the environmental police; they served 29 notices of violation; they prosecuted 126 persons under the Motor Vehicles and Road Traffic Act and 19 persons under the Litter Act. Additionally, the environmental police monitored 118 noise variations, which means people applied, they got the variations and the environmental police were out there monitoring; they served two notices of cancellation of noise violations and they supported 43 CECS.

Mr. President, we are satisfied that the environmental police are out there working, but we are not satisfied that we have a good enough enforcement around these issues, and as I said before, we have under construction right now a more comprehensive enforcement of both developmental and environmental issues.

I just want to say up to Friday last, the Minister of Local Government invited me to join her and her team, so I took a team from the ministry, particularly town and country, because we thought that was what the main issue was and it turned out to be more than that, and from that site visit—I am not going to give too many details, not a state secret, but you do not want to give too many details as yet—we have determined that we need to put the Environmental Management Authority

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into a different mode with respect to addressing a number of these environmental issues. Just having environmental police out there alone is not going to be the answer. We need a more comprehensive approach and we have something in place for this specific area already which will then inform how we go forward.

So, Mr. President, with those few words, I thank you.

Question put and agreed to.

Senate adjourned accordingly.

Adjourned at 4.26 p.m.

WRITTEN ANSWERS TO QUESTIONS

The following question was asked by Sen. Dr. Adesh Nanan:

Water and Sewerage Authority (Wells drilled from 2002 to Present)

12. Could the hon. Minister of Public Utilities indicate the number of wells drilled by WASA from 2002 to present, and the location of the said wells?

The following reply was circulated to Members of the Senate:

The Minister of Public Utilities (Hon. Mustapha Abdul-Hamid):

From 2002 to present WASA drilled 109 wells. The location of the said wells is provided in the Appendix

Water and Sewerage Authority Wells 2002 - 2009

	Year Drilled	Well Name	Location
1	2002	St Joseph #1	North Central
2	2002	Matura #2	North East
3	2002	Carapo #1	North East
4	2002	Carapo #1	Central

**Water and Sewerage Authority
Wells 2002 – 2009**

	Year Drilled	Well Name	Location
5	2002	Sangre Grande #4	North East
6	2002	Sangre Grande #3	North East
7	2002	Sangre Grande #2	North East
8	2002	Sangre Grande #1	North East
9	2002	Carapo #1	Central
10	2002	Paramin #6	North West
11	2002	Paramin #7	North West
12	2003	Acono #2	North Central
13	2003	Acono #1	North Central
14	2003	Moka #3	North West
15	2003	Arouca #6	North West
16	2003	La Pastora #3	North West
17	2003	Coora #17	North West
18	2004	Cumuto #1	North East
19	2004	La Pastora #3	North West
20	2004	Coora #17	South Central

**Water and Sewerage Authority
Wells 2002 – 2009**

	Year Drilled	Well Name	Location
21	2005	Cumuto #1	North East
22	2005	Craig Hall #2	Tobago
23	2005	Craig Hall #1	Tobago
24	2005	Arnos Vale #4	Tobago
25	2005	Arnos Vale #2	Tobago
26	2005	Arnos Vale #3	Tobago
27	2006	Freeport #15	Central
28	2006	Caparo #2	North East
29	2006	Matura #3	North East
30	2006	Penal #24	South Central
31	2006	Chatham #12	South West
32	2006	Point Fortin #17	South West
33	2006	Point Fortin #16	South West
34	2006	Sandy River #1	Tobago
35	2006	Sandy River #2	Tobago
36	2006	Mason Hall #1	Tobago

**Water and Sewerage Authority
Wells 2002 – 2009**

	Year Drilled	Well Name	Location
37	2006	Mason Hall #2	Tobago
38	2006	Adelphi #1	Tobago
39	2006	Arnos Vale #1	Tobago
40	2007	Freeport #16	Central
41	2007	Freeport Todds #18	Central
42	2007	Freeport #17	Central
43	2007	Carlsen Field #11	Central
44	2007	Carlsen Field #12	Central
45	2007	El Socorro #14	North Central
46	2007	El Socorro #13	North Central
47	2007	Lopinot #1	North Central
48	2007	Arima #10	North East
49	2007	Grande Riviere #1	North East
50	2007	Tamana #1	North East
51	2007	Matelot #1	North East
52	2007	Guanapo #1	North East

**Water and Sewerage Authority
Wells 2002 – 2009**

	Year Drilled	Well Name	Location
53	2007	Diego Martin #16	North West
54	2007	River Estate #9	North West
55	2007	Barrackpore #2	South Central
56	2007	Clarke Road #7	South Central
57	2007	Scott's Road #5	South Central
58	2007	Scott's Road #4	South Central
59	2007	Barrackpore #1	South Central
60	2007	Fyzabad #13	South Central
61	2007	Fyzabad #12	South Central
62	2007	Barackpore #4	South Central
63	2007	Plum Mitan #1	South East
64	2007	Palo Seco #8	South West
65	2007	Chatham #13	South West
66	2007	Granville #16	South West
67	2007	Charlotteville (Cambelton)#2	Tobago
68	2007	Bacolet #4	Tobago

**Water and Sewerage Authority
Wells 2002 – 2009**

	Year Drilled	Well Name	Location
69	2007	Hermitage #4	Tobago
70	2007	Hermitage #5	Tobago
71	2007	Hermitage #3	Tobago
72	2007	Englishman #1	Tobago
73	2007	Bloody Bay #3	Tobago
74	2007	Hermitage #2	Tobago
75	2007	Bacolet #3	Tobago
76	2007	Englishman #2	Tobago
77	2007	Conda Hall #1	Tobago
78	2007	Charlotteville (Cambelton)#1	Tobago
79	2007	Hermitage #1	Tobago
80	2008	Mount Irvine #1	Tobago
81	2008	Caparo #3	Central
82	2008	Talparo #1	Central
83	2008	Carlen Field #13	Central
84	2008	Arima #12	North East

**Water and Sewerage Authority
Wells 2002 – 2009**

	Year Drilled	Well Name	Location
85	2008	Arima #11	North East
86	2008	Cumuto #2	North East
87	2008	Santa Cruz #8	North West
88	2008	Diego Martin Central #1	North West
89	2008	Lower Santa Cruz #7	North West
90	2008	Santa Cruz #5	North West
91	2008	Saddle Grove #1	North West
92	2008	River Estate #12	North West
93	2008	Clarke Road #8	South Central
94	2008	Penal #25	South Central
95	2008	Barrackpore #3	South Central
96	2008	Coora #18	South Central
97	2008	Mayaro #15	South East
98	2008	Mayaro #16	South East
99	2008	Mayaro #17	South East
100	2008	Plum Mitan #2	South East

**Water and Sewerage Authority
Wells 2002 – 2009**

	Year Drilled	Well Name	Location
101	2008	Chatham #14	South West
102	2008	Bacolet #5	Tobago
103	2009	Tacarigua #16	North Central
104	2009	Valsayn #16	North Central
105	2009	Arouca #7	North Central
106	2009	River Estate #11	North West
107	2009	River Estate #10	North West
108	2009	Biche #1	South East
109	2009	Biche #2	South East

The following question was asked by Senator Lyndira Oudit:

**Trinidad and Tobago Entertainment Company Limited
(Increases in Administrative Expenses)**

24. Could the hon. Minister of Trade and Industry and Minister in the Ministry of Finance indicate reasons for increases of the administrative expenses of the Trinidad and Tobago Entertainment Company Limited from 2007 to 2008 in the following areas?

	2007	2008
Directors fees	\$140,200	\$302,600
Legal and Professional Fees	\$ 58,358	\$134,487
Office Rental	\$200,838	\$434,499
Telephone	\$ 362	\$ 61,253
Vehicle Rental	—	\$138,235

The following reply was circulated to Members of the Senate:

The Minister of Trade and Industry and Minister in the Ministry of Finance (Sen. The Hon. Mariano Browne):

It should be noted that although the Trinidad and Tobago Entertainment Company Limited was incorporated on November 30, 2006, and the board of directors appointed in January 2007, the company only became operational in April 2007. The bank account was then opened and the board managed the set up of the company until employees were contracted beginning in October 2008.

The 2007 figures therefore reflect only six (6) months of operations during which the company was in start-up mode. The 2008 numbers reflect a full year of operation.

Detailed explanations are as follows:

Directors fees and allowances for all board members were revised effective June 01, 2008 as authorized by the Ministry of Finance on July 18, 2008. The revision was an increase to \$3,700.00 for board member, \$5,550.00 for deputy chairman, and \$7,500 for chairman from \$1,400.00, \$2,000.00 and \$3,800.00 respectively.

Legal & Professional Fees: Costs were mainly for Human Resource recruitment services for the 2007 figure. The 2008 figure constitutes Human Resource recruitment services and audit fees.

Office Rental: The premises on which the Trinidad and Tobago Entertainment Company Limited was located at 49 Dundonald Street was acquired on a two-year lease from the MEGA Insurance Company Limited from May 2007 for \$36,000.00 monthly (VAT inclusive). Security deposit and Monthly payments from May to September constitutes the 2007 figure. Payments from October onwards account for the 2008 figure.

Telephone: The increase in telephone costs was attributed to the increase in the operations of the company. One telephone line was installed by TSTT in December 2007 with three additional lines being installed in February 2008.

Vehicle Rental: Two vehicles were acquired on two-year leases in January 2008 from Furness Rental Limited. A Honda CRV costing \$9,200.00 monthly was acquired for use by the CEO as per terms of his/her contract and a Mitsubishi Lancer costing \$5,290.00 monthly for use by the Office Assistant in relation to office duties.

The following question was asked by Senator Lyndira Oudit:

**Trinidad and Tobago Entertainment Company
(Increases in Project Expenditure)**

25. Could the hon. Minister of Trade and Industry and Minister in the Ministry of Finance indicate factors which account for increases in project expenditure of the Trinidad and Tobago Entertainment Company from 2007 to 2008 in the following areas?

	2007	2008
Revolving investment Arrangement	\$256,486	\$1,372,035
Capacity development	\$198,047	\$ 766,358

The following reply was circulated to Members of the Senate:

The Minister of Trade and Industry and Minister in the Ministry of Finance (Sen. The Hon. Mariano Browne):

The Trinidad and Tobago Entertainment Revolving Investment Arrangement (RIA) has been established to provide assistance for entertainment practitioners with international projects related to the entertainment industry. These may include but are not limited to projects in market development, music production, multimedia production, theatrical productions, dance productions, works of mas and touring, as well as implementation of export plans. The RIA forms an integral part of the company's projects aiming to meet the following objectives:

- To facilitate international exposure of local entertainers;
- To market and promote the national creativity;
- To ensure that Trinidad and Tobago's range of creativity is identified from being the home of steel pan to being the home of soca, chutney, calypso and carnival arts/masquerade; and
- To assist local entertainers and artists in accessing funding for projects.

The RIA provides financial assistance of up to 70 per cent of approved project. The percentage is decided on a case-by-case basis. The applicant is required to provide documentation showing ability to raise the balance of funds not supplied by the company before any funds are disbursed. The level of funding to be provided is at the sole discretion of the T&T Entertainment Company Limited.

The Revolving Investment Arrangement and Capacity Development fall under the Company's Development Project Expenditure. The 2007 figures therefore reflect only six (6) months of operations during which the company was in start-up mode. The 2008 numbers reflect a full year of operation.

Capacity Development is another objective under the development projects portfolio. Sub-headings under this include workshops and seminars which are facilitated, the TEntOnline website, project marketing, the entertainment directory project and the archiving/research and development project.

The following question was asked by Sen. Lyndira Oudit:

Naturalized Citizens

- 40.** A Would the hon. Minister of National Security indicate to the Senate the number of foreign nationals who have been naturalized as citizens of Trinidad and Tobago since 2006;
- B. Would the Minister also inform the Senate of the country of origin of these naturalized citizens since 2006?

The following reply was circulated to Members of the Senate:

The Minister of National Security (Sen. The Hon. Martin Joseph):

- A. Between January 01, 2006 and January 31, 2010, a total of 97 foreign nationals were naturalized as citizens of Trinidad and Tobago.
- B. The countries of origin of the naturalized citizens for the period under review are as follows:

Arabia	Honduras	Russia
Aruba	Hong Kong	Suriname
China	Kuwait	Syria
Colombia	Lebanon	USA
Cuba	Martinique	Venezuela
Egypt	Peru	
France	Phillipines	
Germany	Portugal	