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**IN THE HIGH COURT OF THE SUPREME COURT OF JUDICATURE OF GUYANA
CIVIL JURISDICTION**

(CONSTITUTIONAL AND ADMINISTRATIVE DIVISION)

PROCEEDING FOR RELIEF UNDER THE CONSTITUTION

2021-HC-DEM-CIV-FDA-

**IN THE MATTER OF THE CONSTITUTION OF THE
CO-OPERATIVE REPUBLIC OF GUYANA**

- and -

**IN THE MATTER OF AN APPLICATION FOR
REDRESS UNDER ARTICLE 153 OF THE
CONSTITUTION FOR CONTRAVENTION OF THE
APPLICANT'S FUNDAMENTAL RIGHTS
GUARANTEED BY ARTICLES 40, AND 149(J) OF
THE CONSTITUTION**

BETWEEN:-

- 1. TROY THOMAS**
- 2. QUADAD DE FREITAS**

Applicants

- and -

ATTORNEY GENERAL OF GUYANA

Respondent

AFFIDAVIT OF FIRST APPLICANT TROY THOMAS

I, **TROY THOMAS** of 391 Block EE Eccles, East Coast Demerara, the Applicant, MAKE
OATH AND SAY:

1. I am the First Applicant in this matter.

2. The facts deposed to in this Affidavit are true and correct and within my own knowledge, save where I may state otherwise in which case I believe the same to be true and correct.
3. I am a citizen of Guyana. My name appears on the electoral register of Guyana. I am a scientist by profession. I am currently the Dean of the Faculty of Natural Sciences at the University of Guyana. I hold a PhD degree from the University of Ghent in Comparative Science of Cultures and an MSc degree in Statistics from the University of Leuven. I also hold an MSc degree in Development, Policy and Analysis, a Graduate Diploma in Education (Mathematics) and a BSc degree in Mathematics from the University of Guyana. I am a graduate of the Cyril Potter College of Education. My research includes methodologies of data collection and analysis of data.
4. I am the father of two children Etan Thomas aged six (6) years and Noah Thomas aged four (4) years and I make this application on my behalf, on behalf of my children and in the public interest.
5. The Cooperative Republic of Guyana is a carbon sink that removes from the atmosphere more greenhouse gas than is emitted by the population of Guyana. Nevertheless, my health and wellbeing, and the health and wellbeing of my sons and of the people of Guyana, are under threat from the pollution of the earth's atmosphere and oceans by greenhouse gases. This greenhouse gas pollution is endangering and harming human lives, human rights and the ecosystems on which we depend both within and outside of Guyana.
6. There is overwhelming scientific evidence of the devastating impact of greenhouse gas emissions. The Government of Guyana has acknowledged and admitted this impact. I attach the relevant extracts on which I rely. I provide links to the full electronic document where available. Hard copies can be provided if the Hon. Court so wishes.

A. THE IMPACT OF CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

Greenhouse gas emissions

7. The earth's atmosphere and oceans have been and continue to be polluted by the release and accumulation of greenhouse gases ("GHG").
8. The most prevalent greenhouse gas in the atmosphere is carbon dioxide (CO₂), and the largest human-caused source of that CO₂ is the burning of fossil fuels, including oil, gas and coal for energy. CO₂ is emitted as a direct result of burning oil and gas. When oil and gas are used to produce energy, CO₂ and other GHG are inevitably released.
9. The GHG emitted from burning fossil fuels are generally put into three categories:
 - I. **Scope 1** emissions are direct GHG emissions that occur from the combustion of fossil fuels at a facility or project. In the context of oil and gas production, these are the GHG emissions that result from the process of producing oil and gas, such as GHG emitted through drilling, gas flaring and associated transport.
 - II. **Scope 2** emissions are indirect GHG emissions from electricity that is purchased.
 - III. **Scope 3** emissions are indirect GHG emissions that come from burning oil, gas and coal for energy. In the context of oil and gas production, scope 3 emissions cover "downstream" emissions created by transportation and distribution, and by the end user burning oil and gas for energy. While combustion of such oil and gas by the end user may be outside the control of the entity responsible for its production, that combustion of oil and gas for fuel is the intended and foreseeable consequence of producing that oil and gas.
Further information on the distinction between scope 1, 2 and 3 emissions can be found here:
https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard_041613_2.pdf

10. Regardless of their scope, GHG emissions are the primary cause of two distinct but related phenomena, climate change and ocean acidification.

Climate change and global warming

11. Climate change refers to changes in the climate because of the increase in the average global temperature. This increase in temperature can be called “global warming” or the “greenhouse effect”.
12. Through the greenhouse effect, CO₂ and other GHG trap the sun’s heat in the atmosphere, making the earth hotter. This global warming alters the earth’s climate systems (Climate Change), resulting in extreme weather, more frequent droughts and floods, and spread of disease vectors, among many other impacts.
13. Exxon Research and Engineering Company explained the greenhouse effect in 1982 in an internal review entitled ‘CO₂ Greenhouse Effect’ (“the Exxon CO₂ Review”) as follows:

“The ‘greenhouse effect’ refers to the absorbtion [sic] by CO₂ and other trace gases contained in the atmosphere (such as water vapour, ozone, carbon monoxide, oxides of nitrogen, freons, and methane) of part of the infrared radiation which is reradiated by the earth. An increase in absorbed energy via this route would warm the earth’s surface causing changes in climate affecting atmospheric and ocean temperatures, rainfall patterns, soil moisture, and over centuries potentially melting the polar icecaps.” This is found in page 2 of the review, which is exhibited herewith and marked “TT1”.

14. The scientific consensus on climate change is set out in the reports of The **Inter-Governmental Panel on Climate Change (IPCC)**. The IPCC is a United Nations body. Its reports are based on climate change science and are adopted by consensus by 195 Member States, including Guyana.
15. The IPCC includes scientists from the fossil fuel industry. On its website, ExxonMobil states that it participates regularly in the development of IPCC reports:

“Our scientists have participated in the U.N.’s Intergovernmental Panel on Climate Change since its inception in 1988. The IPCC assesses the scientific, technical and socioeconomic information relevant for understanding the risk of climate change. ExxonMobil scientists have been selected by the IPCC as authors of the past four major assessment reports...”

A printout of the relevant page from the Exxon Mobile website referenced here is exhibited herewith and marked “TT2”. The website can be found here: <https://corporate.exxonmobil.com/Energy-and-environment/Environmental-protection/Climate-change/ExxonMobil-four-decades-of-climate-science-research>

16. In its reports, the IPCC has concluded that we can substantially reduce the risk of dangerous climate change if we limit global warming to 1.5°C above pre-industrial levels whereas if temperature rises above 1.5°C, and especially above 2°C, the impacts of climate change will be severe and uncontrollable. I am advised by my attorneys-at-law and verily believe that these targets are now reflected in the **Paris Agreement**, an international agreement made under the **United Nations Framework Convention on Climate Change in 2015**.
17. GHG gas pollution has already increased the earth’s ambient temperature by 1°C. In its report, ‘IPCC, 2018: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.’ (**IPCC Global Warming Report 2018**) the IPCC states that at **Section A.1 page 4** of the Summary for Policymakers:

“Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels with a *likely* range of 0.8°C to 1.2°C. Global warming is *likely* to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate. (*high confidence*).”

Section A.1 page 4 of the IPPC Global Warming Report is exhibited herewith

and marked “TT3”. The full report is accessible here: <https://www.ipcc.ch/sr15/>

Impact on oceans

18. As excess CO₂ is absorbed by the oceans, it makes the water more acidic. This “ocean acidification” is harmful to marine wildlife and marine ecosystems, as well as having deleterious impacts on those who depend on the ocean for their lives and livelihoods. While both climate change and ocean acidification result from the combustion of oil, gas and other fossil fuels, they are distinct phenomena.

19. Human beings depend on the ocean. The **IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (IPCC Ocean Report)** states in Chapter 5, Executive summary, page 450:

“The ocean is essential for all aspects of human well-being and livelihood. It provides key services like climate regulation, through the energy budget, carbon cycle and nutrient cycle. The ocean is the home of biodiversity ranging from microbes to marine mammals that form a wide variety of ecosystems in open pelagic and coastal ocean.” [Emphasis added].

Page 450 of the IPCC Ocean Report is exhibited herewith and marked “TT4”.

The full report may be accessed here: <https://www.ipcc.ch/srocc/>

20. At the same page in this Report, The **IPPC** then warns that the marine environment is under threat from GHG:

“Carbon emissions from human activities are causing ocean warming, acidification and oxygen loss with some evidence of changes in nutrient cycling and primary production.” [Emphasis added].

21. Climate change is destroying marine ecosystems. The **IPCC Global Warming Report Summary 2018** states in **section B.4.4, page 9** that:

“Impacts of climate change in the ocean are increasing risks to fisheries and aquaculture via impacts on the physiology, survivorship, habitat, reproduction, disease incidence, and risk of invasive species (*medium confidence*) but are projected to be less at 1.5°C of global warming than at 2°C. One global fishery model, for example, projected a decrease in

global annual catch for marine fisheries of about 1.5 million tonnes for 1.5°C of global warming compared to a loss of more than 3 million tonnes for 2°C of global warming (*medium confidence*).

Page 9, section B.4.4, of the IPCC Global Warming Report Summary 2018 is exhibited herewith and marked “TT5”.

22. The threat of climate change to the marine ecosystems of Guyana has been acknowledged in the ‘**National Climate Change Policy and Action Plan 2020-2030 Draft 2.0** dated **May 14, 2019** at **page 167** notes:

“Guyana has a thriving marine fishing industry, changes in temperature however, may cause a shift in the range of fish species and a disruption to fish reproductive patterns. Salt water intrusion and inundations will also negatively affect fresh water fisheries and shrimp farms.”

Page 167 of this Report is exhibited herewith and marked “TT6”.

Sea level rise

23. A major impact of climate change is sea level rise. The IPCC’s scientific finding at **page 7 of the Summary of the Global Warming Report 2018** is that:

“Sea level will continue to rise well beyond 2100 (*high confidence*), and the magnitude and rate of this rise depend on future emission pathways.

Section B.2.2, page 7 of the IPCC Global Warming Summary is exhibited herewith and marked “TT7”.

24. The Government of Guyana has accepted the science of climate change. On 29th October 2020 in an address at the Group of 77 and China virtual Ministerial Level Meeting, hosted by Guyana under the theme “Maintaining a Low Carbon Development Path towards the 2030 Agenda in the Era of COVID-19” Vice-President Jagdeo stated,

“We are not here to prove the science of climate change. That has already been proven and accepted. We are not here to debate the outcome, or the impact, of climate change because most people in this room and across the world have been witnessing and experiencing this firsthand in a

way that is almost existential through various hurricanes, rising sea-level, flooding, drought and a whole host of other activities so we are not here to prove that again.”

25. An official transcript is not available but the full speech may be accessed here: [https://www.facebook.com/pppcguyana/videos/address-by-vice-president-dr-bharrat-jagdeo-at-the-group-of-77-and-china-virtual/635271927150557/? so =permalink& rv =related videos](https://www.facebook.com/pppcguyana/videos/address-by-vice-president-dr-bharrat-jagdeo-at-the-group-of-77-and-china-virtual/635271927150557/?so=permalink&rv=related_videos)

B. CLIMATE CHANGE IS AN EXISTENTIAL THREAT TO GUYANA

26. Five United Nations human rights treaty bodies, the Committee on the Elimination of Racial Discrimination Against Women, the Committee on Economic, Social and Cultural Rights, the Committee on the Protection of the Rights of All Migrant Workers and Members of Their Families, the Committee on the Rights of the Child and the Committee on the Rights of Persons with Disabilities have issued a **Joint statement on Human Rights and Climate Change** (HRI/2019/1) dated 14th May 2020 (the “UN Committees Joint Statement”). In referring to the IPCC’s Global Warming Report, at page 1, the author’s state that,

“The adverse impacts identified in the report threaten, among others, the rights to life, to adequate food, to adequate housing, to health and to water, and cultural rights.” [Emphasis added].

The UN Committees Joint Statement is exhibited herewith and marked “TT8”.

27. The Government of Guyana has also warned that climate change is an existential threat. On 29th October 2020, Vice-President Jagdeo in an address to the Group of 77 stated that:

“We are faced with an existential threat here that will not go away. [Emphasis added]

This extract is at 4:02 in the recording which can be found here:

[https://www.facebook.com/pppcguyana/videos/address-by-vice-president-dr-bharrat-jagdeo-at-the-group-of-77-and-china-virtual/635271927150557/? so =permalink& rv =related videos](https://www.facebook.com/pppcguyana/videos/address-by-vice-president-dr-bharrat-jagdeo-at-the-group-of-77-and-china-virtual/635271927150557/?so=permalink&rv=related_videos)

C. CLIMATE CHANGE IS ALREADY HARMING GUYANA

28. The 'Climate Resilience Strategy and Action Plan 2015 for Guyana (Draft for Consultation)' "CRSAP") produced by the Ministry of the Presidency warned at page 4 that:

"The adverse, and potentially catastrophic, impacts of climate change are already being experienced in Guyana. Since the 1960s, Guyana has observed significant changes in its climate system with marked increases in temperatures, sea levels and the frequency and intensity of extreme rainfall events.

The **CRSAP page 4** is exhibited herewith and marked "TT9". The CRSAP is 282 pages long and the full report is available here:

<https://climatechange.gov.gy/en/index.php/resources/documents/124-climate-resilience-strategy-and-action-plan>

D. CLIMATE CHANGE IS GETTING WORSE

29. These impacts are only going to increase. In 2015 Government's CRSAP warned that climate change was getting worse:

"The impacts of climate change are expected to worsen and accelerate over time causing changes in all components of the climate system, which in turn increase the likelihood and consequence of severe, pervasive and irreversible impacts for people and ecosystems." [Emphasis added] See **Exhibit TT9** ((CRSAP page 4)

30. Vice President Jagdeo has repeated that warning:

"If anything it's [climate change] getting worse if you look at the science coming out, some of the warmest years are now with its impact on the ecology etc." [Emphasis added.]

This quote from the speech can be found at 4:02 and can be found here:

https://www.facebook.com/pppcguyana/videos/address-by-vice-president-dr-bharrat-jagdeo-at-the-group-of-77-and-china-virtual/635271927150557/?so=permalink&rv=related_videos

E. GUYANA IS PARTICULARLY VULNERABLE TO CLIMATE CHANGE

31. On 29th October 2020 in his address to the Group of 77 and China virtual Ministerial Level Meeting President Ali warned that

“Guyana as a net carbon sink, is ‘particularly vulnerable’ to climate change because of its geography and historical settlement patterns... [Emphasis added]

Exhibited herewith and marked “TT10” is a transcript of the address. The speech may be accessed here: <https://www.minfor.gov.gy/other-speeches/he-dr-irfaan-ali-opening-remarks-on-the-g77-flagship-event/>

32. Guyana’s coastal area, (including the capital city Georgetown and the Eugene F Correia International Airport), is low or already below sea-level and very vulnerable to sea-level rise and to flooding. The **CRSAP** stated at **page 9** that:

“Guyana is classified as a high flood risk country, with the greatest vulnerability experienced within the coastal zone. Indeed, especially since 39% of Guyana’s population and 43% of its GDP are located on the coastal zone in regions that are exposed to significant flooding risk by virtue of the concentration of the population, economic activities, critical infrastructure (e.g. transport) in these areas. (CRSAP page 9) [Emphasis added].

Page 9 of the CRSAP is exhibited herewith and marked “TT11”.

33. The **IPCC Report ‘Climate Change 2007, Fourth Assessment Report, Working Group II’** states:

“...extensive, low-lying (often deltaic) areas, e.g....Guyana...are especially threatened by a rising sea level and all its resulting impacts...” (Section 6.4.2, p330) and “In Guyana, 90% of its population and its important economic activities are located within the coastal zone and are threatened by sea level rise and climate change.”

This text is at **Section 6.4.2 page 331** which is exhibited herewith and marked “TT12”. **The full report is available here:**

https://www.ipcc.ch/site/assets/uploads/2018/03/ar4_wg2_full_report.pdf.

34. The **Union of Concerned Scientists in the United States of America** on their website says:

“Guyana is particularly vulnerable to sea-level rise stemming from climate change, plus regional shifts in the height of the sea. ... By 2100, scientists project a global sea level rise of 2.6 feet (80 centimetres)—and as much as 6.6 feet (2 meters), depending largely on how much we continue to overload the atmosphere with carbon. [Emphasis added]

This information is on the Union of Concerned Scientists website at:

<https://www.climatehotmap.org/global-warming-locations/guyana.html>

A printout of the page where this information is found is exhibited herewith and marked “**TT13**”.

35. Any sea-level rise is dangerous for Guyana. Two (2) metres would be catastrophic. It could cover much, or all, of the low-lying coast including Georgetown. The **CRSAP** confirms that Guyana has already suffered devastation as a result of climate change:

“The impacts on Guyanese people, society, economy and environment, from flooding events in 2005, 2006, 2008, 2010, 2011, 2013, 2014 and 2015 and the droughts of 1997-8, 2009-2010 and 2015 are poignant examples of the devastation caused by climate change. Flooding in 2005, for example, caused damage estimated at US\$ 465 million (60% of GDP)... The increasing frequency of these extreme events is certainly alarming especially because of Guyana’s particular vulnerability to climate change.” [Emphasis added].

See **CRSAP** page 4, attached as **Exhibit TT9**.

36. President Ali has warned of catastrophe in his speech to the G77:

“The adverse and potentially catastrophic impacts of climate change are already conspicuous.” [Emphasis added]

See exhibit **TT10** which can also be found here: <https://www.minfor.gov.gy/other-speeches/he-dr-irfaan-ali-opening-remarks-on-the-g77-flagship-event/>

37. The Government of Guyana's **National Climate Change Policy and Action Plan 2020-2030 Draft 2.0** dated **May 14, 2019** at **page 167** [Exhibit TT6, referenced above] **also said:**

It is projected that inundation caused by minimum storm surge (2m) may inundate more than 25,000 ha of rice lands and 11,000 ha of residential areas, whereas maximum storm surge (5m) may affect over 29,000 ha of rice lands and an upper limit of 22,361 ha of residential lands for the periods 2031 to 2071. It is predicted that hinterland regions will also experience droughts and increased salinity. Decreasing yields and the decreasing quality of export crops like rice and sugar will negatively affect Guyana's economy. The yield and quality of major export crops, rice and sugar will be affected. Additionally, mixed farming, cash crop production and animal grazing pastures will fall prey to the climatic changes that are predicted. Drought and water deficit situations will need to be addressed with adaptation technologies such as irrigation, which will in turn increase the cost of production. Research has shown that a change in the climate causes an increase in the spread of existing vector-borne (e.g. malaria and cholera) and water-borne (e.g. dengue) diseases and macro parasites of animals. In some instances, there is the introduction of new diseases to the environment.

38. Sea level rise is now killing Guyana's mangroves. Mangroves are a critical ecosystem, as well as protecting Guyana from flooding. The **Union of Concerned Scientists** website exhibited at **TT13** above also says that:

"Coastal mangrove fringes are particularly at risk from sea-level rise. Mangroves naturally move slowly landward as sea level rises. However, because the Guyana coast is developed, the mangroves cannot do so, and slowly die off from being pinned in place as sea level rises. This exposes more of the coast to damage from saltwater inundation, storm surges, and reduces the nursery habitat for commercial fishing."

[Emphasis added].

F. **DISPROPORTIONATE IMPACT ON CHILDREN**

39. The **IPCC Global Warming Summary Report 2018** warns at page 5 that past emissions will have an impact for centuries:

“Warming from anthropogenic emissions from the pre-industrial period to the present will persist for centuries to millennia and will continue to cause further long-term changes in the climate system...”

Page 5 of the IPCC Global Warming Summary Report is exhibited herewith and marked “**TT14**”.

40. Past GHG emissions will affect future generations who are not responsible for those emissions. Each tonne of CO₂ and other GHGs released into the atmosphere will make the damage to our children’s environment longer lasting, more severe and more dangerous.
41. The **UN Joint Committees Statement** exhibited at TT8 above, says that:
- “Children are at a particularly heightened risk of harm to their health owing to the immaturity of their bodies.” ([3] p 1-2).

G. **ANY INCREASE IN GLOBAL WARMING IS DANGEROUS**

42. The IPCC has warned that:

“Any increase in global warming is projected to affect human health, with primarily negative consequences (*high confidence*). Risks from some vector-borne diseases, such as malaria and dengue fever, are projected to increase with warming from 1.5°C to 2°C.”Section B.5.2 p 9 IPCC Global Warming Summary. Extract at **Exhibit TT5**.

43. An increased risk of malaria and dengue makes the environment more harmful to health and wellbeing. Malaria and dengue are dangerous and even fatal diseases that already affect people in Guyana, particularly in the hinterland. The Amerindian peoples form the majority population in the hinterland. Their health, wellbeing and lives are disproportionately at risk from any increase in global warming.
44. Climate change threatens food security. **Guyana’s Nationally Determined**

Contribution (“NDC”), submitted under the Paris Agreement is a public document submitted by Guyana to the United Nations. It states that page 5:

“Agriculture in Guyana, as elsewhere, is under threat from the adverse effects of climate change, including floods and droughts. Given its small scale, and concentrated as it is along the narrow coastal strip where Guyana’s most productive soil are found, our agriculture is particularly vulnerable to sea level rise and other adverse effects of climate change.”

Guyana’s Nationally Determined Contribution is exhibited herewith and marked “TT15”.

H. GREENHOUSE GAS EMISSIONS MUST BE REDUCED.

45. The **UN Joint Committees Statement** [exhibit TT8, at page 2] says:

“The report of the Inter-governmental Panel on Climate Change makes it clear that, in order to avoid the risk of irreversible and large-scale systemic impacts, urgent and decisive climate action is required.”

46. They further state at page 3, that:

“In order for states to comply with their human rights obligations and to realise the objectives of the Paris Agreement they must adopt and implement policies aimed at reducing emissions. These policies must reflect the highest possible ambition, foster climate resilience and ensure that public and private investments are consistent with a pathway towards low carbon emissions and climate resilient development.”

47. The IPCC has warned in its Global Warming Report 2019 that:

“Without increased and urgent mitigation ambition in the coming years, leading to a sharp decline in greenhouse gas emissions by 2030, global warming will surpass 1.5°C in the following decades leading to irreversible loss of the most fragile ecosystems and crisis after crisis for the most vulnerable people and societies.”

A copy of **page vi** of the **IPCC Global Warming Report** is exhibited herewith and marked **Exhibit TT16**.

48. The **IPCC** calculates that net GHG emissions must be reduced by about 45% of 2010 by 2030 and effectively eliminated by 2050 to keep global warming to 1.5°C. The **IPCC Global Warming Report** states at page 95, that

“In model pathways with no or limited overshoot of 1.5°C, global net anthropogenic CO₂ emissions decline by about 45% from 2010 levels by 2030 (40–60% interquartile range), reaching net zero around 2050 (2045–2055 interquartile range).”

Page 95 of the **IPCC Global Warming Report** is exhibited herewith and marked “**TT17**”.

49. Even Exxon, a major producer of fossil fuels, admitted in its 1982, nearly 40 years ago, that,

Mitigation of the “greenhouse effect” would require major reductions in fossil fuel combustion.”

Page 2 of the **1982 Exxon Greenhouse Effect Review** is exhibited herewith and marked “**TT18**”.

50. Major reduction in fossil fuel combustion necessarily entails comparable reductions in fossil fuel production.

51. The International Energy Agency, in its report ‘**Net Zero by 2050: A Roadmap for the Global Energy Sector**’, published 18 May 2021, has warned at **page 18**:

“Net zero means a huge decline in the use of fossil fuels. They fall from almost four-fifths of total energy supply today to slightly over one-fifth by 2050.”

Page 18 of the **IEA Report** is exhibited herewith and marked “**TT19**”.

52. Consequently, the International Energy Agency states at page 21 that:

“There is no need for investment in new fossil fuel supply in our net zero pathway. Beyond projects already committed as of 2021, there are no new oil and gas fields approved for development in our pathway and no new coal mines or mine extensions required. The unwavering policy focus on climate change in the net zero pathway results in a sharp decline in fossil fuel demand, meaning that the focus for oil and gas producers switches

entirely to output – and emissions reductions – from the operation of existing assets.”

Page 21 of the **IEA Report** is exhibited herewith and marked “**TT20**”.

The full report can be found here:

<https://iea.blob.core.windows.net/assets/4719e321-6d3d-41a2-bd6b-461ad2f850a8/NetZeroBy2050-ARoadmapfortheGlobalEnergySector.pdf>]

53. Guyana’s **Nationally Determined Contribution** warns at page 2 that coastal low-lying developing states including Guyana:

“...lack the capacity - financial and otherwise - to withstand more frequent catastrophic climate events, if there is no agreement to reduce global emissions.”

The NDC is exhibited at **TT15**.

54. It is imperative for Guyana to contribute to a reduction in global emissions and avoid contributing to catastrophic climate events that Guyana cannot withstand.

GUYANA’S COMMITMENT TO REDUCE EMISSIONS

55. Guyana is a member of the IPCC and a signatory to various international treaties, including the United Nations Framework Convention on Climate Change (the “UNFCCC”) and the Paris Agreement, for the protection of the environment and the mitigation of climate change through the reduction of GHG emissions.

56. Guyana’s NDC submitted under the Paris Agreement states that Guyana is committed to the fight against global climate change. See Exhibit **TT15**, at **page 4**.

57. Guyana has committed to reducing its GHG emissions by following a low ‘carbon’ development path. On President Ali’s address the Group of 77 and China virtual Ministerial Level Meeting, stating:

“... I wish to highlight the role of Guyana’s Low Carbon Development Strategy (LCDS). The LCDS is aimed at transforming Guyana’s economy to better deliver greater socio-economic benefits to our people by following

a low carbon development path while at the same time mainstreaming climate resilience.” [Emphasis added]. See **Exhibit TT10**.

58. Guyana’s NDC further states that

“Guyana’s overarching contribution goal is to achieve a Green Economy via a low emission economic development pathway...This includes the pursuit of a resilient, low-carbon, socially-inclusive economy that provides for a better quality of life for all within the ecological limits of our planet, particularly as it pertains to our common global climate.” Emphasis added. See Page 6, **Exhibit TT15**.

59. Guyana is a carbon sink. It has negative overall emissions. Within this context Guyana’s NDC contains proposals to reduce emissions even further and states that Guyana’s Emissions Reduction Programme will reduce emissions in the logging and mining sectors. See Guyana’s NDC, **Exhibit TT15**.

60. Under ‘conditional contributions’ Guyana states:

“Guyana is committed to eliminating our near complete dependence on fossil fuels. Given our solar, wind and hydropower potential and relatively small national demand, we believe that with adequate and timely financial support, Guyana can develop a 100% renewable power supply by 2025.”

See NDC pages 10-11, **Exhibit TT15**.

61. Guyana’s NDC is consistent with the UN Joint Committee’s Statement which says that:

“In their efforts to reduce emissions, States parties should contribute effectively to phasing out fossil fuels, promoting renewable energy and addressing emissions from the land sector, including by combating deforestation.” See page 3, **Exhibit TT8**.

62. A low emissions pathway or low carbon development path means that Guyana emits or produces low levels of GHG emissions. An increase in net emissions, even if Guyana remains as a carbon sink, is still an increase that is contrary to global efforts to reduce emissions. It is also pellucid that Guyana cannot move from its position as a carbon sink with net negative emissions to becoming an

overall net low emissions economy because a transition from net negative emissions to net low emissions is an increase not a reduction in emissions. Furthermore, Guyana could become ineligible for funding as a carbon sink if it becomes an overall emitter of greenhouse gases.

63. The **National Climate Change Policy and Action Plan (Draft 2.0 May 2019)** states on **page 16** that Guyana is committed to achieving the sustainable development goals (SDGs) and on **page 17** that the primary SDG that the policy addresses is SDG 13, which is to take urgent action to combat climate change and its impacts. **Pages 16 and 17** of this **Plan** is exhibited herewith and marked **Exhibit TT21**.

GUYANA IS INCREASING ITS OVERALL EMISSIONS OF GREENHOUSE GASES

64. Despite Guyana's commitment in 2015 to contribute to a reduction in global greenhouse gas emissions and subsequent statements to that effect, Guyana is taking steps that would increase global greenhouse emissions by petroleum development.

Proposed petroleum development.

65. The production of fossil fuels produces GHG scope 1 and scope 3 emissions. The United States Environmental Protection Agency (the "USEPA") uses a formula of 0.43 metric tonnes of CO₂ per barrel to calculate the emissions from extracting and burning crude oil. This is the standard formula that would be applied if oil was being produced in the United States. ExxonMobil claims to have discovered over 8 billion barrels of recoverable oil offshore in Guyana's Exclusive Economic Zone (EEZ). Their **press statement dated September 8, 2020** is exhibited herewith and marked "**TT22**".
66. Applying the USEPA's established formula to 8 billion barrels of oil indicates that 3,440,000,000 tonnes of CO₂ equivalent would be released by burning that oil. (8,000,000,000 barrels x 0.43 = 3,440,000,000 tonnes of CO₂ equivalent.)
67. The World Bank reports that Guyana emitted 3.09 tons of CO₂ per capita in 2016, resulting in 2.35 million tons of CO₂ per year for the entire nation. Should these 8

billion barrels of oil claimed by ExxonMobil be fully produced and used, the resulting emissions (including scope 3 emissions) would equate to more than one thousand four hundred (1,400) years of emissions for Guyana as a whole. The World Bank's graph is at **Exhibit TT23**. The World Bank report is here: <https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?locations=GY>

Current petroleum development in Liza Phase 1 Development

68. Esso Exploration and Production Guyana Ltd. ("Esso"), a subsidiary of ExxonMobil, stated that it has been producing oil from the Liza Phase 1 Development Project (Liza 1) since December 2019. **Table 2-3 of Esso's Environmental Impact Assessment** estimates the annual emissions of greenhouse gas from Liza 1, expressed in kilotonnes of CO₂ equivalent as follows:

2018-2019: 2 yrs annual emissions of 195 kilotonnes = 390 kilotonnes

2020-2021: 2 yrs annual emissions of 1510 kilotonnes = 3020 kilotonnes

2022-2040: 19 yrs annual emissions of 980 kilotonnes = 18,620 kilotonnes

Total of 22,030 kilotonnes or 22,030,000 tonnes.

Table 2-3 of the Liza 1 Environmental Impact Assessment is attached at **Exhibit TT24**.

69. These emissions dwarf Guyana's total annual CO₂ emissions. The actual and projected scope 1 emissions from Liza 1 oil production, alone, are equivalent to approximately 10 years' worth of Guyana's annual CO₂ emissions, at present rates.

Proposed petroleum development in Liza Phase 2 Development

70. **Table 2.12-5 of Esso's Environmental Impact Assessment** for the Liza Phase 2 Development Project (Liza 2) estimates the annual emissions of greenhouse gas from Liza 2, expressed in kilotonnes of CO₂ as follows:

2020-2021: 2 yrs annual emissions of 195 kilotonnes = 390 kilotonnes

2022-2024: 3 yrs annual emissions of 2325 kilotonnes = 6,975 kilotonnes

2025-2042: 18 yrs annual emissions of 1,510 kilotonnes = 27,180 kilotonnes.

Total of 34,545 kilotonnes or 34,545,000 tonnes. **Table 2.12-5** of the **Liza 2 Environmental Impact Assessment** is attached as **Exhibit TT25**.

71. These scope 1 emissions from Liza 2 would dwarf Guyana's total emissions and would be equivalent to more than 14 years' worth of Guyana's annual CO2 emissions, at present rates.
72. Esso has not yet announced that Liza 2 has started production. While the years listed in Table 2.12-5 may be later, depending on when Esso announces the start of production, Esso has not announced any change in the level of emissions in Table 2.12-5.

Proposed petroleum development in Payara

73. **Table 2.12-5** of **Esso's Environmental Impact Assessment** for the Payara Development Project (Payara) estimates the annual emissions of greenhouse gas from Payara, expressed in kilotonnes of CO₂ as follows as follows:

2020-2022 3 yrs annual emissions of 250 kilotonnes = 750 kilotonnes

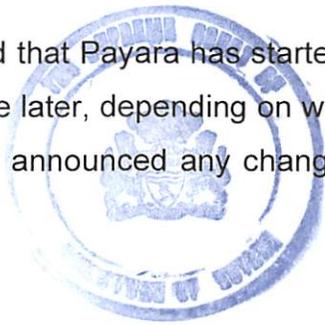
2023- 2025 3 yrs annual emissions of 3,075 kilotonnes = 9225 kilotonnes

2026 – 2044 19 yrs annual emissions of 1,355 kilotonnes = 25,745 kilotonnes

Total of 35,720 kilotonnes of 35,720,000 tonnes.

Table 2.12.5 of Payara's Environmental Impact Assessment is attached as **Exhibit TT 26**.

74. These scope 1 emissions from Payara would dwarf Guyana's total emissions and would be equivalent to more than 15 years' worth of Guyana's annual CO2 emissions, at present rates.
75. Esso has not yet announced that Payara has started production. While the years listed in Table 2.12-5 may be later, depending on when Esso announces the start of production, Esso has not announced any change in the level of emissions in Table 2.12-5.



Summary

76. In sum, the scope 1 emissions from the Liza Phase 1 Development, Liza Phase 2 Development, and Payara projects are inconsistent with Guyana's NDC and commitments under the Paris Agreement. In addition, the cumulative scope 3 emissions from the projects will significantly contribute to climate change, are inconsistent with the global carbon budget, and will contribute to the harm below.

PRESENT AND FUTURE HARM AND THREATS TO ME AND MY SONS

77. Climate change and ocean acidification have transformed the global and regional environments in ways that are harmful to human health and well-being within and beyond Guyana. Every further barrel of oil or cubic metre of gas produced will exacerbate the climate crisis, increase ocean acidification and increase the harm to the health and well-being of Guyana's people, including our children.
78. I am already observing and personally experiencing the effects of climate change. The rainy season is changing and it is raining when it would not normally be expected to rain. The rainy and dry seasons are no longer as regular and predictable as they were when I was growing up. The rainfall is heavier. The **'Georgetown Guyana: Disaster Risk and Climate Change Vulnerability Assessment'** states at **page 36** that there is a distinct rise in extreme rainfall events. **Page 36** of this report is exhibited herewith and marked "TT27".
79. I am also observing increased flooding. In Wakenaam where I grew up, there have been more breaches of the sea-defences in recent years. Also at the University of Guyana where I work, every year there are areas that are flooded. But in recent years I have observed that the floods are more frequent and the land is also under water for longer periods of time. A copy of a **News Room report dated 2nd November 2020** is exhibited herewith and marked "TT28". The report can be found here:
<https://newsroom.gy/2020/11/02/hydromet-office-warns-of-more-flooding-as-guyana-transitions-to-secondary-rainy-season/>
80. Malaria and dengue are not limited to the interior of Guyana and the increased risk of these diseases makes the environment more harmful to my health and

- wellbeing, and to the health and wellbeing of my sons.
81. The impact of climate change on agriculture and fisheries affects food security for me, my sons and the Guyanese people.
 82. The continued emission of GHG threatens life on earth. Human beings are connected to and part of nature. The destruction of nature has a damaging impact on mental, spiritual and psychological health and wellbeing for me, my sons and the Guyanese people.
 83. The 'existential threat' caused by GHG emissions already exists. It threatens me, my sons and the Guyanese people. The changed environment is already harmful to our health and wellbeing. The intensity of that harm will increase as fossil fuels continue to be burned.
 84. The ocean is essential to human wellbeing. But it is already becoming more acidic, threatening all marine life and affecting negatively the health and wellbeing of all who depend on it, including me, my sons and the Guyanese people.
 85. An environment in which I, my children and the people of Guyana suffer and will continue to suffer adverse and potentially catastrophic impacts of climate change is clearly an environment that is already harmful to our health and wellbeing.
 86. The threat to food security, the danger of rising sea-levels, the impact on marine and other biodiversity, the increased danger from disease, are all matters that make the future insecure and cause me anxiety. As a parent I am particularly frightened at the future that my sons will face as a result of the failure to stop GHG emissions and remove GHG pollution from the atmosphere and ocean.
 87. The existing pollution of the earth by GHG imposes a disproportionate burden on my sons. In the natural duration of life, they will suffer the impacts long after my generation has died, and those impacts will be greater. The environment will be even more harmful to their health and wellbeing than it is now.
 88. In addition, future pollution of the earth from GHG emissions will have more devastating and catastrophic impacts as they interact with impacts from previous emissions. For example, global warming is causing the Arctic ice to melt and

causing the Arctic seabed and tundra to release methane, which is a powerful GHG. This in turn contributes to faster warming and faster melting of the ice. All across the earth feedback loops of this nature will accelerate and will exacerbate the impacts of GHG pollution.

89. The **National Climate Change Policy and Action Plan (Draft 2.0 May 2019)** states on **page 60** that Guyana's biologically unique savannah woodland (including "bush islands") and forested wetland ecosystems are particularly **vulnerable to fires and deforestation**. This will in turn create another feedback loop, intensifying the process and impact of climate change. **Page 60** of the Plan is exhibited herewith and marked "TT29".
90. It is imperative to stop burning fossil fuels in order to protect human health and wellbeing from the devastating and catastrophic impacts of GHG pollution. Adaptation measures cannot stop global warming, or sea-level rise, or bring back Guyana's mangroves or other lost ecosystems.
91. It is my respectful application that, for these reasons and other legal grounds stated in my Fixed Date Application and/or also to be addressed by Counsel on my behalf, the orders sought by me in the Fixed Date Application with which this Affidavit is filed, ought to be granted with costs.
92. This Affidavit was drawn by Melinda Janki and Ronald Burch-Smith Attorneys-at-Law who are authorised and instructed by me Troy Thomas to do all acts and things necessary on my behalf.

Sworn to at Georgetown, Demerara)

This **21 MAY 2021** day of May 2021)

Before me

A COMMISSIONER OF OATHS



FILED ON BEHALF OF THE FIRST APPLICANT, TROY THOMAS

Faint, illegible text, possibly bleed-through from the reverse side of the page. The text is arranged in several horizontal lines across the page.

Handwritten signature or initials, possibly "G. S. H."

