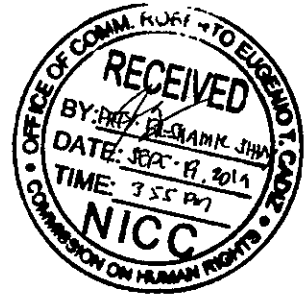


Republic of the Philippines
COMMISSION ON HUMAN RIGHTS
Diliman, Quezon City



In Re:

**National Inquiry on the Impact of
Climate Change on the Human Rights of
the Filipino People and the
Responsibility therefor, if any, of the
“Carbon Majors”**

CHR-NI-2016-0001

x-----x

**MEMORANDUM
FOR THE PETITIONERS¹**

Petitioners **GREENPEACE SOUTHEAST ASIA (PHILIPPINES), PHILIPPINE RURAL RECONSTRUCTION MOVEMENT, SENTRO NG MGA NAGKAKAISA AT PROGRESIBONG MANGGAGAWA, DAKILA, PHILIPPINE ALLIANCE OF HUMAN RIGHTS ADVOCATES, PHILIPPINE HUMAN RIGHTS INFORMATION CENTER, MOTHER EARTH FOUNDATION, ECOWASTE COALITION, 350.ORG EAST ASIA, NAGKAKAISANG UGNAYAN NG MGA MAGSASAKA AT MANGGAGAWA SA NIYUGAN, ASIAN PEOPLES' MOVEMENT ON DEBT & DEVELOPMENT, ALLIANCE OF YOUTH ORGANIZATIONS AND STUDENTS-BICOL, PHILIPPINE MOVEMENT FOR CLIMATE JUSTICE, NUCLEAR FREE BATAAN MOVEMENT, VON HERNANDEZ, FR. EDWIN GARIGUEZ, NADEREV “YEB” SAÑO, AMADO GUERRERO SAÑO, [REDACTED], JUAN MANUEL “KOKOI” BALDO, LIDY NACPIL, BENJAMIN ACERON, ELMA REYES, LAIDY REMANDO, RICHARD LOPEZ, CONSTANCIA LOPEZ, LERISSA LIBAO, GLORIA CADIZ, TARCILA M. LERUM, ROY N. BASTO, and VERONICA V. CABE**, through the undersigned Legal Representatives, in compliance with the Honorable Commission’s directive in its *Notice* dated 05 July 2019, respectfully submit this *Memorandum*.

¹ Submitted *ex-parte* (without furnishing respondents a copy) considering that there is no directive from the Honorable Commission to do so in its *Notice* dated 26 June 2019 and *Notice* dated 05 July 2019. Also, none of the respondents appeared during the public hearings and sending printed copies to them (given the number of pages of this memorandum and the annexes attached) require needless waste of paper. At any rate, this memorandum will be published online immediately upon filing at this website <https://www.greenpeace.org/philippines/press/1237/the-climate-change-and-human-rights-petition/> for transparency purposes. All other pleadings, documentary exhibits, transcript of stenographic notes, notices, and other processes are also available at said website.

I

PREFATORY STATEMENT

Many Filipinos do not have the choice but to face and survive the storms and typhoons, and floods and the consequences that come with it. Not having water and electricity and not knowing that your family is safe. . . I have seen how poor communities have become even more vulnerable to the impacts of climate change. I believe that through this petition, our stories and our voices can be heard. I hope that people of influence would listen to us. I believe that governments and corporations have the choice to choose people over profit, and businesses have a right to do business, but -- us -- we also have the right to live.

- Ms. Veronica Cabe, Fifth Inquiry Hearing, London²

It is an age-old story: the fate of many decided by the actions of a few. As a country, the Philippines has been the victim of someone else's greed and recklessness for too long. Its history is one of a people conquered. Its narrative is one of resilience in the face of colonization, war, tyranny, and poverty. Now, the Philippines looks to its future.

July 2019 matched -- and may have broken -- the record as the hottest month³ in history,⁴ and 2018, when the public hearings for this National Inquiry began, was globally the fourth hottest year on record.⁵ The World Meteorological Organization's Secretary-General, Petteri Taalas, explained that "[t]his is not science fiction. It is the reality of climate change. It is happening now and it will worsen in the future without urgent climate action."⁶

² Testimony of Ms. Veronica Cabe, *Transcript of Proceedings: National Inquiry on the Impact of Climate Change on the Human Rights of the Filipino People, and the Responsibility of the "Carbon Majors," if any, Fifth Hearing, 6-7 November 2018*, pp. 111-113 (hereinafter, "TSN dated 6-7 November 2018"), also available at: <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-December-11-to-12-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

³ Around 1.2°C warmer than the pre-industrial era.

⁴ World Meteorological Organization (01 August 2019), *July matched, and maybe broke, the record for the hottest month since analysis began*, available at <https://public.wmo.int/en/media/news/july-matched-and-maybe-broke-record-hottest-month-analysis-began> (last accessed on 12 September 2019).

⁵ Climate Central (06 February 2019), *The 10 Hottest Global Years on Record*, available at <https://www.climatecentral.org/gallery/graphics/the-10-hottest-global-years-on-record> (last accessed on 12 September 2019).

⁶ World Meteorological Organization, *supra* note 4.

Climate change is the greatest threat facing Filipinos today. It is an existential risk and a humanitarian nightmare that impedes the country's aspiration to rapidly move forward and develop sustainably for present and future generations to come. While typhoons have always been a cause for concern among Filipinos, climate change is making matters worse. It intensifies storms, extends the dry season, and alters the normal course of the climate.

It does not take scientific or climate expertise to understand what this means: climate change will destroy Filipinos' livelihoods and cause widespread food insecurity in the country.⁷ It will claim lives through disasters, disease, or starvation. Those fortunate to survive will be displaced and become strangers in their homeland, losing a sense of belonging from the community with whom they used to live. Young people will be forced to become breadwinners to compensate for the injury or loss of their parents, robbing yet another generation of their ability to realize their dreams.

This National Inquiry bore witness to these injustices. We heard a young Indigenous woman of the Aeta-Ambala⁸ who shared her fear of losing the cultural traditions of her people because the forests, springs, and lands no longer provide the food and medicine they have always relied on. She told us about her father, a farmer unable to bear the extreme heat, forced to work shorter hours for a reduced income, making day-to-day survival even harder.

A rice farmer⁹ invited us to see in a grain of rice the symbol of a dream, a hope, a dying family legacy, and now a wretched livelihood. He illuminated the tragic irony of farmers -- those who feed this country -- going without enough to eat, dragged deeper into poverty and debt to regenerate their fields after typhoons drown the crops, only to worry about the drought that may come later. He laid bare for us the ingredients of life that climate change is taking away: food to eat, land to till, and a home to live in. *Nag-uulyanin na ang panahon*. "The weather is getting more senile," he said, and farmers are at its mercy.

A leader from the LGBTQIA+¹⁰ community in Tacloban¹¹ helped us understand what may appear to be simple and everyday luxuries for many of us, like a refrigerator, represented to her a dream, conjured by years of sacrifice, determination, and hard work— only to be washed away in the hungry storm surge of super typhoon *Yolanda* (internationally known and hereinafter referred to as "Haiyan"). The same super typhoon displaced a

⁷ Exhibit "L" to "L-38," *Literature Review of Studies Related to Climate Change Impacts in the Philippines*.

⁸ See Exhibit "M" to "M-4," *Salaysay ni Bb. Rica Diamzon Cahilig*, dated 16 March 2018.

⁹ See Exhibit "U" to "U-2," *Salaysay ni Gg. Felix "Ka Jhun" Pascua*, dated 17 March 2018.

¹⁰ Lesbian, Gay, Bisexual, Transgender, Queer/Questioning, Intersex, Asexual, and many other terms.

¹¹ See Exhibit "LLLL" to "LLLL-4," *Salaysay ni Arthur S. Golong*, dated 16 August 2018.

youth survivor¹² who was forced to stand up for her family at a young age and work overseas—enduring loneliness just to help put food on the table.

We also heard about how climate change impacts people's lives in the cities. A surgeon who temporarily lost the use of her hands after infection from a previously unheard-of mosquito-borne disease after a typhoon.¹³ The *jeepney* driver¹⁴ who was forced by the extreme heat to work shorter hours for a smaller income. These witnesses testified to the way extreme heat and air pollution stress the human body beyond its ability to cope.

And we have heard too many stories from across the country -- from those who have lost their children, parents, brothers, sisters, friends, and neighbors to ever fiercer typhoons and tropical cyclones¹⁵ -- the shadows of which continue to steal their peace of mind long after their loved ones have been laid to rest. **These have prompted petitioners to ask: Is this the kind of life our children and the Filipino children, in general, will face—living in the shadow of fear and want?**

You might have noticed that what these community witnesses and those similarly-situated Filipinos want most from life is not riches or fame. They want what we all want: to feel safe, to have enough to eat, to have access to healthcare when they are sick, to have a home to lay their heads down every night, to have work, to get an education, to send their children to school so they might enjoy better lives, to pass their culture down to the next generation, to realize a dream. Freedom from fear, freedom from want—dignity. **These are basic human rights, so basic that we cannot help but question why they seem to be such an elusive, far-fetched dream to many Filipinos.**

Some would call these hardships a tragedy; others would see in them the cruel hand of destiny. A narrative that has proven to be particularly pervasive is that everyone is responsible for the effects of climate change—and that no one, therefore, can be held accountable. But to take that view would be to ignore the responsibilities and obligations of those who have contributed more than anyone else to the climate crisis. **The petitioners are boldly challenging this narrative and requesting that those most responsible be held accountable.**

¹² See Exhibit “NNNNNNN” to “NNNNNNN-6,” *Statement of Ms. Marielle Trixie J. Bacason*, dated 22 October 2018.

¹³ See *Transcript of Proceedings: National Inquiry on the Impact of Climate Change on the Human Rights of the Filipino People, and the Responsibility of the “Carbon Majors,” if any, Third Hearing, 29-30 August 2018*, pp. 255-256 (hereinafter, “TSN dated 29-30 August 2018”), also available at: <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-August-29-to-30-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

¹⁴ See Exhibit “HH” to “HH-2,” *Salaysay ni Gg. Ernesto C. Cruz*, dated 16 March 2018.

¹⁵ See Exhibit “CCCCCCCCC” to “CCCCCCCCC-3,” *Saysay ni Gng. Amalia Bahian*, dated 03 December 2018 (Cebuano with English translation); and Exhibit “IIIIIIII” to “IIIIIIII-4,” *Salaysay ni Bb. Honeylyn A. Gonzales*, dated 29 November 2018.

The stories of indignity piled upon injustice are, in substantial part, the result of conscious decisions to act and not to act made by the respondent Carbon Majors herein. At some point, people in positions of power effectively decided it would be acceptable to continue producing, marketing, selling, and profiting from coal, oil, and gas that they knew would cause harm to untold millions of people, to the present, and to generations to come. They made investment decisions over and over again in defiance of science, of the law, and of conscience. We have heard the human cost of those decisions, and it will only get much worse.

Time and time again, Filipinos have proven that, in the face of catastrophe, they are galvanized into action. But until when are Filipinos going to be content to adapt and continue to bear the costs of climate change? This conundrum will surely haunt us until we put a halt to this, raise the alarm, and stand together against the major culprits of this devastating situation we were forced to accept as part of our “new normal.”

This National Inquiry heard stories of hope and heroism from a group of proactive Filipinos from *Barangay Banaba*, San Mateo, Rizal who, having survived strong typhoons and floods since the 1990s, established their own non-profit organization, *Buklod Tao*.¹⁶ They are implementing projects to reduce the risks from disasters in their neighboring communities in Rizal: creating task forces to conduct rescues after major floods and supporting affected communities as they rebuild. Even the founders of *Buklod Tao*, however, know that small efforts, while invaluable to vulnerable communities, cannot prevent the future impacts of climate change.

With numerous tragic stories we heard during the course of the National Inquiry, more Filipinos are beginning to understand the fundamental injustice in having to bear the worst impacts of climate change while those who contribute most to it continue to enrich themselves.

In the past, the global magnitude of climate change and the multitude of factors that cause it presented a challenge in allocating responsibility. This allowed the major contributors, such as the fossil fuel industry, to shift blame on others. But times have changed. A study by Mr. Richard Heede of the *Climate Accountability Institute* showed that 90 Carbon Major entities, including the 50¹⁷ investor-owned Carbon Major companies contributed an

¹⁶ See Exhibit “ZZZ” to “ZZZ-2,” *Mga Salaysay nina Gg. Manuel A. Abinales, Gg. Pablo Taon III, at Gng. Francia M. Encinas*.

¹⁷ Since the first publication of the Carbon Majors research in 2013, a number of the 50 investor-owned carbon producers have changed and will likely continue to change due to mergers, acquisitions, cessation of operations, or becoming part of state-owned companies. Currently, it appears that there are 42 active investor-owned respondent Carbon Majors. The petitioners have noted these changes in previous submissions to the Honorable Commission and in Annexes “D” (Corporate Statements on Climate Change and Human Rights) and “E” (Respondent Carbon Majors’ Commitments, Scores, and Grades) of this memorandum. **To avoid confusion, the 47 Carbon Major entities that were notified in the**

estimated total of 1,023 GtCO₂, or 66% of all anthropogenic CO₂ from 1751 to 2016.¹⁸

For the first time since climate change became a central issue for the public, consumers, and communities, there is evidence that the titans of fossil fuel industry are, in fact, overwhelmingly responsible for fueling climate change. The greenhouse gas (GHG) emissions linked to 50 of those investor-owned producers, known collectively herein as respondent Carbon Majors, contribute to climate impacts in the Philippines, and in turn to human rights harms. Just 50 investor-owned companies contributed an estimated total 368 GtCO₂e (21.4%).¹⁹

This is a landmark moment in history. Filipinos have strong grounds for demanding that respondents take immediate action to prevent the harm that they have so cavalierly disregarded at the expense of the people. Through this Honorable Commission's valiance in applying established human rights laws and standards, Filipinos have hope that their rights to life, a balanced and healthful ecology in accord with the rhythm and harmony of nature, the highest attainable standard of physical and mental health, food, clean water, sanitation, adequate housing, development, self-determination, culture, and equality and non-discrimination, among others, will soon be vindicated. Only when the climate crisis is averted can Filipinos' human dignity be restored.

As espoused by Fr. Joaquin Bernas, one of the most respected constitutionalists in this jurisdiction, "with respect to the right to life, it is not just a protection of the right to be alive, or to the security of one's limb against physical harm. **The right to life is the right to a good life.** The importance of the quality of living finds stronger emphasis in *Article XIII*, on social justice, and even the life of the unborn finds protection in the *1987 Constitution*."²⁰

Consolidated Reply will be used by the petitioners when referring to the respondents for the purposes of this memorandum.

¹⁸ Exhibit "TTTT-A" to "TTTT-A-3," *Climate Accountability Institute, Press Release on Update of Carbon Majors Project*, p. 1 (Updating Richard Heede's 2013 study: see Exhibit "TTTT" to "TTTT-1," *Climate Accountability Institute, Press Release on Update of Carbon Majors Project*; Exhibit "UUUU" to "UUUU-103," *Carbon Majors: Accounting for Carbon and Methane Emissions 1854-2010 Methods and Results Report*; and Exhibit "VVVV" to "VVVV-14," *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*).

¹⁹ *Ibid.*

²⁰ Bernas, J.G. (2003), *The 1987 Constitution of the Republic of the Philippines: A Commentary*, 2003 ed.; Manila: Rex Book Store, p. 110.

II THE CASE

In the Philippines, super typhoon Haiyan certainly needs no introduction. With sustained winds of 305 kph, a width spanning 595 km (approximately 25 times the length of EDSA²¹), and storm surges up to five meters in height, Haiyan is etched in the country's collective memory as the most devastating typhoon in modern history.²² The damage it left in its wake amounted to trillions of pesos. Worse yet, locals say it claimed many more lives than the official death toll of 6,340,²³ and it displaced millions of people who are still rebuilding their lives to this very day.

Extreme weather events do not have a single cause, as there are various contributing factors. Human-induced climate change exacerbates and increases the likelihood of more of these natural disasters, turning them into human-made disasters. The warming caused by carbon dioxide is increasing the intensity of extreme weather events. This has long been established by science.²⁴

The catastrophe brought on by Haiyan and by *Habagat*, typhoons *Pablo*, *Sendong*, and *Ondoy*, and other extreme weather events show the stark reality of climate change and its lethal repercussions. Where once it was said that the world is on the verge of climate change, now there is no denying that we are already in the midst of a climate crisis, and island nations like the Philippines are among those at greatest risk despite being the least responsible.

Thus, on 22 September 2015 or almost four (4) years ago, Greenpeace Southeast Asia (Philippines), Philippine Rural Reconstruction Movement, and twelve (12) other non-profit human rights and environmental organizations -- along with eighteen (18) individuals who are mostly farmers, fisherfolks, workers, and concerned Filipino citizens who bear the brunt of the impacts of climate change -- filed this *Petition* against the respondent investor-owned coal, oil, gas, and cement companies named in Mr. Heede's breakthrough research.²⁵ The investor-owned Carbon Majors have

²¹ Epifanio Delos Santos Avenue

²² Jazul, L. (08 December 2013), *Catastrophe by Numbers*, Rappler, available at <https://www.rappler.com/nation/45464-in-photos-catastrophe-by-the-numbers> (last accessed on 12 September 2019). Also see *Effects of Typhoon Yolanda (Haiyan)*, p. 3, available at [http://www.ndrrmc.gov.ph/attachments/article/1329/Effects_of_Typhoon_YOLANDA_\(HAIYAN\)_SitRep_No_10_10NOV2013_0600H.pdf](http://www.ndrrmc.gov.ph/attachments/article/1329/Effects_of_Typhoon_YOLANDA_(HAIYAN)_SitRep_No_10_10NOV2013_0600H.pdf) (last accessed on 12 September 2019).

²³ Sison, Jr., B. (05 January 2015), *Yolanda death toll as high as 15,000, priest says*, available at <http://www.philstar.com/headlines/2015/01/05/1409522/yolanda-death-toll-high-15000-priest-says> (last accessed on 12 September 2019). Also see *Effects of Typhoon Yolanda (Haiyan)*, p. 3, *supra* note 22.

²⁴ See Part V (A to C): Material Facts as Established by Evidence and Part VIII: Arguments and Discussion sections of this memorandum for more elucidation.

²⁵ See Exhibit "UUUU" to "UUUU-103," Exhibit "VVVV" to "VVVV-14," Exhibit "TTTT" to "TTTT-1," and Exhibit "TTTT-A," *supra* note 18.

significantly contributed to the warming of the planet, which in turn, has caused devastating and deadly impacts. The Honorable Commission should look closely into these Carbon Majors that produce fossil fuels since GHG emissions from coal, oil, and gas are the main drivers of climate change.

Today, Filipinos are dealing with a human rights crisis that the fossil fuel industry could have prevented. **Instead of “sounding the alarm,” many of the respondents “went out of their way to becloud the emerging scientific consensus and further delay changes -- however existentially necessary -- that would in any way interfere with their multibillion-dollar profits,” and “[a]ll while quietly readying their capital for the coming fallout.”**²⁶

Although the *Petition* primarily discusses climate change, increased carbon dioxide (CO₂) emissions have also been causing the acidification of the Earth’s oceans, resulting in serious harms. The emissions from fossil fuels produced by respondents are, therefore, linked to both climate change and what is now being called its equally “evil twin,” ocean acidification.²⁷

The *Petition* invoked the Honorable Commission’s investigatory, recommendatory, and monitoring powers to prevent or curb further violations of petitioners’ and all Filipinos’ constitutionally-protected human rights resulting from the impacts of climate change. Based on the evidence submitted by the petitioners, the Honorable Commission is empowered to make findings of fact and law and to issue recommendations.

In this memorandum, the petitioners will lay down the antecedent proceedings that transpired; the Honorable Commission’s authority to investigate and grant the reliefs they prayed for; the material facts as established by evidence, particularly, the climate science and respondent Carbon Majors’ corporate early knowledge of climate risks and actions and/or inactions taken in light of the foreseeable harms; and petitioners’ position and recommendations. To bolster their position and lay basis to their recommendations, the petitioners will establish the following:

- a) Climate change is impacting the Philippines and Filipinos suffer disproportionately from these impacts;
- b) Climate change results in -- and/or threatens -- the impairment, infringement, abuse, and/or violation of the human rights of the Filipinos;

²⁶ Opinion and Order, United States District Court for the District of Rhode Island, 22 July 2019, in *State of Rhode Island v. Chevron Corp.*, Case 1:18-cv-00395-WES-LDA, available at <https://www.courthousenews.com/wp-content/uploads/2019/07/FullText-29.pdf> (last accessed on 12 September 2019).

²⁷ See Part VIII (A and D): Arguments and Discussion section of this memorandum for more elucidation.

- c) Respondent Carbon Majors significantly contribute to climate change;
- d) Respondent Carbon Majors' actions and/or inactions are linked to the climate change occurring and/or threatening to occur in the Philippines; and
- e) Respondent Carbon Majors are responsible, under international laws and agreements and domestic laws, to respect and protect the human rights of Filipinos in the context of climate change.

The National Inquiry has the potential to shed light on who is to blame for the climate crisis, even in part, and bring attention to the enormous role of carbon producing companies. The petitioners aim to set the record straight by demonstrating that the coal, oil, and gas companies are to a significant extent responsible for the climate crisis and must take action to prevent further human rights abuses resulting from climate impacts.

Climate change interferes with the enjoyment of the Filipinos' fundamental rights. Hence, petitioners demand accountability from those who have significantly contributed to climate change—the respondent Carbon Majors herein.

III THE PROCEEDINGS

3.1. On 22 September 2015, petitioners filed the urgent and groundbreaking *Petition* against the world's largest investor-owned fossil fuel and cement producers imploring the Honorable Commission to use its investigatory, recommendatory, and monitoring powers to look into respondent Carbon Majors' responsibility for human rights violations or threats thereof, resulting from the impacts of climate change. For purposes of this memorandum, respondent Carbon Majors are also referred herein simply as "respondents."

3.2. On 10 December 2015, right after the Honorable Commission's announcement during the Paris Climate Change Conference²⁸ that it would take cognizance of the *Petition*, pursuant to its mandate to investigate all forms of human rights violations, the Honorable Commission delineated the manner by which the investigation and/or national public inquiry would be conducted.²⁹

²⁸ Held on 30 November to 12 December 2015.

²⁹ See video on the press conference held by the Commission on Human Rights on 08 December 2016, available at <https://www.business-humanrights.org/en/philippines-commission-on-human-rights->

3.3. Four (4) months thereafter, during a preliminary conference conducted by the Honorable Commission, petitioners sought -- and were granted -- leave to file an *Amended Petition* dated 21 April 2016 due to subsequent important events that happened and critical information released in relation to the subject matter of the *Petition*.³⁰ For purposes of this memorandum, *Petition* here refers to the *Amended Petition*, which supersedes the first one filed.

3.4. In an *Order* dated 21 July 2016, the Honorable Commission enjoined respondent Carbon Majors to file their respective comments or answers within forty-five (45) days from receipt of the *Petition*.

3.5. On various dates, the Honorable Commission received fifteen (15)³¹ comments or advice of receipt or delivery of entry and four (4)³² registry return receipts out of the forty-seven (47) respondents³³ summoned, while petitioners received fourteen (14) responses, two (2) of which came from respondent Repsol, S.A. and Repsol Oil & Gas Canada Inc. The responses which petitioners received are as follows:

1. Apache Corporation;
2. CEMEX S.A.B. de C.V.;
3. Chevron;
4. ConocoPhillips;
5. ExxonMobil Petroleum & Chemical Holdings, Inc. Philippine Branch;
6. LafargeHolcim and Lafarge SA, Holcim Group Services Ltd., and Holcim Technology Ltd.;
7. Marathon Oil Corporation;
8. Peabody Energy Corporation;
9. PricewaterhouseCoopers LLP (liquidators of UK Coal);
10. Repsol, S.A. and Repsol Oil & Gas Canada Inc.;
11. Repsol, S.A. and Repsol Oil & Gas Canada Inc.;
12. Shell Company of the Philippines, Limited (SCPL) and Royal Dutch Shell PLC (RDS);
13. Taiheiyo Cement Corporation; and
14. Total Philippines Corporation (TPC)

announces-public-hearings-of-fossil-fuels-firms-over-climate-human-rights-impacts (last accessed on 12 September 2019).

³⁰ See Greenpeace Southeast Asia – Philippines’s website for electronic versions of the submissions and other documents relative to the National Inquiry, *supra* note 1.

³¹ See *Transcript of Stenographic Notes (TSN) of the Meeting or Conference of the Parties dated 11 December 2017* (hereinafter, “TSN 11 December 2017”): (1) OMV Aktiengesellschaft (OMV Group), (2) Chevron Geothermal Services Company, (3) Chevron Kalinga Ltd., (4) Chevron Malampaya LLC, (5) Chevron Philippines, Inc., (6) Chevron Holdings, Inc., (7) Eni S.p.A, (8) Murphy Oil Corporation, (9) Encana Corporation, (10) Arch Coal, (11) Consol Energy Inc., (12) BG Group PLC, (13) Hess Corporation, (14) RWE Konzern, and (15) Devon Energy, pp. 19-21 (hereinafter, “TSN 11 December 2017”).

³² (1) Apache Corporation, (2) Marathon Oil Corporation, (3) Conoco-Phillips Corporation, on 26 October 2017; and (4) Anglo-American Exploration.

³³ For a description of the number of respondents, see *supra* note 17.

3.6. Meanwhile, the Business and Human Rights Resource Centre³⁴ (“BHRRC”), an independent and international non-profit organization which provides an online repository of comprehensive global business and human rights knowledge and tracking human rights policy and performance of over 6,000 companies in over 180 countries, received eleven (11) responses, to wit:

1. Anglo American plc;
2. BHP Billiton;
3. BP plc;
4. ConocoPhillips (Texas mailing address);
5. Eni S.p.A.;
6. Freeport-McMoRan Inc. (for Cyprus Amax Minerals Company);
7. Glencore plc (for Xstrata, Switzerland);
8. PJSC LUKOIL;
9. Peabody Energy Corporation;
10. Repsol; and
11. Rio Tinto London Ltd.

3.7. To aid the Honorable Commission in its important task of addressing all the issues raised by the respondents in opposition to the *Petition* and set the national public inquiry in the right direction, several distinguished international key resource persons and organizations willingly submitted their respective *amicus curiae* briefs, statements, letters, and/or opinion on different dates. Below is the list of these thirteen (13) legal and scientific expert submissions, which were either provided to the Honorable Commission, the petitioners, and/or the BHRRC.

1. Joint submission of Asia Pacific Forum of National Human Rights Institutions (AFP) and Global Alliance of National Human Rights Institutions (GANHRI),³⁵
2. Environmental Law Alliance Worldwide (“ELAW”),³⁶
3. ClientEarth,³⁷
4. Mary Robinson Foundation – Climate Justice;³⁸

³⁴ Business and Human Rights Resource Centre’s, available at <https://www.business-humanrights.org/en/fossil-fuel-cos-respond-to-petition-with-philippines-human-rights-commission-on-human-rights-climate-change-impacts> (last accessed on 12 September 2019).

³⁵ Asia Pacific Forum of National Human Rights Institutions (AFP) and Global Alliance of National Human Rights Institutions (GANHRI), *Amicus Brief – Human Rights and Climate Change (Submission in Support of Petitioners)*, also available at https://www.asiapacificforum.net/media/resource_file/APF_Paper_Amicus_Brief_HR_Climate_Change.pdf (last accessed on 12 September 2019).

³⁶ Environmental Law Alliance Worldwide, *Letter to Commission*, dated 07 November 2016, also available at <https://www.business-humanrights.org/sites/default/files/documents/ELaw.pdf> (last accessed on 12 September 2019).

³⁷ ClientEarth, *Amicus Curiae Brief*, dated 21 November 2016, also available at <https://www.business-humanrights.org/sites/default/files/documents/ClientEarth.pdf> (last accessed on 12 September 2019).

³⁸ Mary Robinson Foundation – Climate Justice, *Letter*, dated 04 November 2016, also available at <https://www.business-humanrights.org/sites/default/files/documents/Mary%20Robinson%20Foundation.pdf> (last accessed on 12 September 2019).

5. Our Children's Trust (OCT);³⁹
6. Joint submission from Olivier De Schutter, Asbjørn Eide, Ashfaq Khalfan, Rolf Künemann, Jernej Letnar Čerňič, Marcos A. Orellana, Ian Seiderman, and Bret Thiele of the Maastricht Principles Drafting Group;⁴⁰
7. Plan B, through Timothy Crosland;⁴¹
8. Sabin Center for Climate Change Law, Columbia Law School;⁴²
9. Professor Sara Seck;⁴³
10. Kevin E. Trenberth;⁴⁴
11. UNICEF Philippines;⁴⁵
12. James Hansen,⁴⁶ and
13. Center for International Environmental Law (CIEL).⁴⁷

3.8. On 02 December 2016, petitioners filed a *Manifestation and Motion* to submit a *Consolidated Reply* on or before 14 February 2017, which the Honorable Commission granted.

3.9. On 13 February 2017, petitioners submitted their *Consolidated Reply*, which refutes respondent Carbon Majors' allegations in their

³⁹ Our Children's Trust, *Amicus Curiae Brief*, dated 06 December 2016, also available at <https://www.business-humanrights.org/sites/default/files/documents/OCT%20Amicus%20Submission.pdf> (last accessed on 12 September 2019).

⁴⁰ Olivier De Schutter, Asbjørn Eide, Ashfaq Khalfan, Rolf Künemann, Jernej Letnar Čerňič, Marcos A. Orellana, Ian Seiderman, and Bret Thiele, *Amicus Submission*, dated 05 December 2016, also available at <https://business-humanrights.org/en/amicus-briefs> (last accessed on 12 September 2019).

⁴¹ Timothy Crosland of Plan B, *Amicus Curiae Brief*, dated 18 October 2016, also available at <https://www.business-humanrights.org/sites/default/files/documents/Plan%20B.pdf> (last accessed on 12 September 2019) and Plan B, *Supplement to Amicus Curiae Brief*, dated 23 November 2016, also available at https://www.business-humanrights.org/sites/default/files/Submission_Plan%20B%20supplementary%20note.pdf (last accessed on 12 September 2019).

⁴² Sabin Center for Climate Change Law, Columbia Law School, *Submission in Support of the Petitioners*, dated 16 December 2016, also available at <https://www.business-humanrights.org/sites/default/files/documents/Wentz-and-Burger-2016-12-Submission-Case-No.-CHR-NI-2016-0001.pdf> (last accessed on 12 September 2019).

⁴³ Sara Seck, *Amicus Submission*, dated 12 November 2016, also available at <https://www.business-humanrights.org/sites/default/files/documents/Western%20University.pdf> (last accessed on 12 September 2019).

⁴⁴ Kevin E Trenberth, Sc.D, Climate Analysis Section, the National Center for Atmospheric Research dated 07 November 2016, also available at <https://www.business-humanrights.org/sites/default/files/documents/Kevin%20E%20Trenberth.pdf> (last accessed on 12 September 2019).

⁴⁵ *Amicus Curiae Brief* submitted by UNICEF dated December 2017, also available at https://www.business-humanrights.org/sites/default/files/documents/UNICEF%20Amicus%20Brief_Child%20%20Rights_Climate_%20Philippines_FINAL.pdf (last accessed on 12 September 2019).

⁴⁶ James Hansen, *Amicus Submission in Support of the Petition*, dated 28 August 2017, also available at https://www.business-humanrights.org/sites/default/files/documents/2017.08.28_Jim.Hansen.Amicus_Comm_Human%20Rights_0.pdf (last accessed on 12 September 2019); also see Our Children's Trust, *Amicus Curiae Brief*, *supra* note 39.

⁴⁷ Center for International Environmental Law, *Opinion of the Center for Environmental International Law in Support of Petitioners*, dated 09 February 2019, also available at <https://www.business-humanrights.org/sites/default/files/documents/CHR-NI-2016-0001%20CIEL%20Opinion%2010.2.17.R.pdf> (last accessed on 12 September 2019).

respective responses and reinforces petitioners' arguments as to the propriety of the *Petition* and the validity of their claims against respondents.

3.10. In May 2017, at least seven (7) respondent Carbon Majors -- Chevron Corporation; Chevron Philippines, Inc. and Chevron Holdings, Inc.; Chevron Geothermal Services Company, Chevron Kalinga Ltd., and Chevron Malampaya LLC; ConocoPhillips; Eni S.p.A; Repsol, S.A. and Repsol Oil and Gas Canada Inc.; and The Shell Company of the Philippines, Limited and Royal Dutch Shell -- filed their respective *Rejoinders* and/or letter response to petitioners' *Consolidated Reply*.

3.11. Beginning July 2017 up to November 2017, the Honorable Commission conducted community visits and dialogues to select climate-impacted areas mentioned in the *Petition* and those which it deemed necessary to visit due to climate impacts:

1. Libon, Albay;
2. Legazpi, Albay;
3. Tacloban City;
4. Tanauan, Leyte;
5. Province of Isabela;
6. Alabat Island;
7. Iligan City;
8. Bukidnon;
9. Cagayan de Oro City; and
10. Batangas City (Verde Island Passage).

3.12. On 11 December 2017, the parties held their first preliminary conference wherein issues, list of witnesses, and initial pieces of evidence to be presented were marked, discussed, and examined. Only petitioners were present and none of the respondent Carbon Majors officially entered their appearance for the preliminary conference, save for respondent Cemex Mexico⁴⁸ who made a special appearance and manifestation that they were not participating in the proceedings. Meanwhile, the Honorable Commission unequivocally denied all of the respondents' motions to dismiss based on jurisdictional grounds and asserted its authority to investigate the *Petition* and hold public hearings for the whole year of 2018 in Manila, New York, and London.⁴⁹

3.13. On 19 March 2018, a group of the amicus submitters⁵⁰ mentioned above submitted a *Joint Summary of the Amicus Curiae* detailing the following:

⁴⁸ TSN dated 11 December 2017, p. 24.

⁴⁹ *Id.*, pp. 4-12.

⁵⁰ CIEL (Erika Lennon, Carroll Muffett, Sébastien Duyck, Steven Feit & Lisa Hamilton); ClientEarth (Sophie Marjanac); Environmental Law Alliance Worldwide (ELAW) (Killian Doherty & Jennifer

1. Summary of *Amici* Expert Contributions on Jurisdiction;
2. Summary of *Amici* Expert Contributions regarding the Human Rights Impacts of Climate Change;
3. Summary of *Amici* Expert Contributions regarding the Science of Climate Change Impacts, Attribution, and Recovery;
4. Summary of *Amici* Expert Contributions regarding Obligations of States;
5. Summary of *Amici* Expert Contributions regarding Responsibility/Accountability of Companies; and
6. Recommendations of Individual *Amici*.

3.14. On 27 and 28 March 2018, the **first public hearings** were held in the Honorable Commission's Inquiry Hall where all the commissioners, were present: Honorable Commissioner Roberto Eugenio T. Cadiz (Inquiry Panel Chairman of the National Inquiry on Climate Change); Honorable Commissioner Karen S. Gomez-Dumpit; Honorable Commissioner Gwendolyn Ll. Pimentel-Gana; Honorable Commissioner Leah C. Tanodra-Armamento; and Chair of the Honorable Commission, Honorable Chairman Jose Luis Martin C. Gascon. The Honorable Commission also invited Dr. Pedro Walpole, SJ as independent expert, and he appeared in all the inquiry hearings conducted. A total of thirteen (13) resource persons were presented by the petitioners:

- a. Five (5) community witnesses who shared the concerns of young people from an Indigenous Peoples group, farmers, fish vendor, and a *jeepney* driver representing the transport sector. The community witnesses presented were Ms. Rica Cahilig, Mr. Felix "Ka Jhun" Pascua, Jr., Ms. Lerissa Libao, Ms. Elma Reyes, and Mr. Ernesto Cruz.
- b. Eight (8) expert resource persons in different fields who discussed climate change and ocean acidification; the vulnerability of the Philippines to these; Carbon Majors as source of carbon emissions; findings of Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) in relation to climate change; health impacts of climate change; and CIEL's *Smoke and Fumes* report,⁵¹ which outlines the fossil fuel industry's knowledge and climate deception.

Gleason); Maastricht Principles Drafting Group (Kristine Perry); Our Children's Trust (Elizabeth Brown & Danny Noonan); Plan B (Tim Crosland); Sabin Center for Climate Change Law, Columbia Law School (Michael Burger & Jessica Wentz); Asia Pacific Forum of National Human Rights Institutions & the Global Alliance of National Human Rights Institutions (Dr. Annalisa Savaresi & Dr. Ioana Cismas); Dr. James E. Hansen (Dan Galpern); and Dr. Kevin E. Trenberth (hereinafter, "Joint Summary of the Amicus Curiae"), available at <http://www.ciel.org/wp-content/uploads/2018/03/Joint-Summary-Amicus-submitted.pdf> (last accessed 12 September 2019).

⁵¹ See Exhibit "K," *Smoke and Fumes: The Legal and Evidentiary Basis for Holding Big Oil Accountable for the Climate Crisis* (Center for International Environmental Law), dated November 2017.

- c. The expert resource persons were Dr. Gerry Bagtasa, Dr. Peter Frumhoff, Ms. Rosalina De Guzman, Dr. Laura David, Dr. Perry Aliño, Dr. Maria Lourdes San Diego-McGlone, Dr. Victorino Molina, and Ms. Lisa Anne Hamilton.

3.15. The **second public hearings** were similarly held in the Honorable Commission's Inquiry Hall on 23 and 24 May 2018. The petitioners presented a total of thirteen (13) resource persons:

- a. Seven (7) community witnesses who spoke about the concerns of fishermen, small business owners selling fish (consignation), and urban poor victims of typhoon *Ondoy* ("Ketsana") in Marikina and Rizal. The community witnesses presented were Mr. Pablo Rosales, Mr. Jonathan Delos Reyes, Mr. Pablo Taon III, Ms. Francia Encinas, Mr. Isagani Molina, and Mr. RJ De Ramos.
- b. Six (6) expert resource persons who discussed the liability or accountability of respondent Carbon Majors; the legal framework of human rights responsibility of transnational corporations; an analysis of Inter-American Court's human rights opinion on a healthy environment; and climate change impacts on the agriculture sector, fish and seaweed supplies, reef ecology, and food chain supply in relation to Philippines' food security. The expert witnesses were Mr. Carroll Muffett, Dr. Michael Addo, Undersecretary Segfredo Serrano of the Department of Agriculture, Dr. Vincent Hilomen, Dr. Marcos Orellano, and Dr. Mudjekeewis Santos.

3.16. On 29 and 30 August 2018, another round of public hearings was held in the Honorable Commission's Inquiry Hall for the scheduled **third public inquiry hearings**. Fourteen (14) resource persons from different cities and countries testified:

- a. Six (6) community witnesses shared their stories and concerns. A transgender super typhoon Haiyan survivor shared her concerns on how climate change compounded gender-based discrimination; fisherfolks and farmers from Capalonga, Camarines Norte also narrated how their lives were impacted; and community witnesses from tribes living in Ifugao Province articulated how climate change impacted their rice terraces in Banawe, which in turn adversely affected their cultural traditions. The petitioners

presented Ms. Arthur S. Golong,⁵² Mr. Elicer G. Lauce, Ms. Delia A. Tulagan, Mr. Buucan Hangdaan, Ms. Dalia Nalliw, and Mr. William Mamanglo as community witnesses.

- b. Eight (8) expert resource persons tackled topics relating to recent climate scenarios; the vulnerabilities and specific impacts of climate change on children; the responsibility of Carbon Majors for climate change; the climate deception perpetrated by the entire fossil fuel industry, particularly, respondents ExxonMobil and Shell; the oil industry's conduct; the vulnerability of the Philippines's biodiversity to climate change; the health impacts of climate change and the pathophysiology of heat stress, air pollution, and the zika virus; valuing climate change impacts, financial policies (closing gaps) and climate change as risk multiplier for agricultural livelihoods; and extreme weather attribution science and climate litigation. The expert resource persons presented were Dr. Rosa Perez, Dr. Celine Vicente, Mr. Richard Heede, Dr. Geoffrey Supran, Mr. Carroll Muffett, Dr. Neil Aldrin Mallari, Dr. Jonathan Moses Jadloc, Mr. Glenn Stuart Hodes, and Ms. Sophie Marjanac.

3.17. The **fourth inquiry hearings** were conducted on 27-28 September 2018 in New York City. Petitioners invited seven (7) resource persons to share their stories and expertise, while the Honorable Commission had six (6) resource persons:

- a. Three (3) community witnesses were presented to speak about the concerns of youth survivors of super typhoon Haiyan and hurricane Sandy and how these impacted their rights, lives, and livelihood. The following community witnesses were presented: Ms. Marinel S. Ubaldo, Ms. Cristina Cocadiz, and Ms. Candice Sering.
- b. Four (4) expert resource persons were invited to discuss economic, social, cultural rights in the context of climate change; how climate change acts as a threat multiplier; the fossil fuel industry's and trade associations' climate deception activities; the landmark tobacco case's⁵³ relation to fossil fuel industry's climate deception; and attribution science specifically pointing out to respondent Carbon Majors as significant contributors to climate change. Ms.

⁵² Arthur Golong identifies as transgender and prefers to be called "Miss."

⁵³ *United States v. Philip Morris, et al.*; See Exhibit "BBBBBBB" to "BBBBBBB-6," *Statement of Sharon Eubanks*, dated 10 September 2018.

Katherine Lofts, Mr. Kert Davies, Ms. Sharon Eubanks, and Dr. Brenda Ekwurzel testified as resource persons for the petitioners.

- c. The Honorable Commission invited the following resource persons to guide it in different relevant topics, namely: Professor David Estrin, Professor Cynthia Williams, Dr. James Hansen, Professor Erin Daly, Professor Radley Horton, and Mr. Daniel Zarrilli.

3.18. On 6-7 November 2018, the **fifth inquiry hearings** were conducted in London. A total of sixteen (16) resource persons were presented both for the petitioners and the Honorable Commission:

- a. Petitioners introduced two (2) community witnesses who shared their stories as typhoon survivors and one as youth who was displaced because of super typhoon Haiyan. Ms. Mariel Trixie Bacason and Ms. Veronica Cabe testified as community witnesses.
- b. Petitioners also presented seven (7) expert resource persons: Mr. Mark Campanale, Mr. Andrew Grant, Prof. Henry Shue, Dr. Roda Verheyen, Dr. Dylan Tanner, Dr. Myles Allen, and Dr. Paul Ekins OBE. These experts spoke about topics on: how much CO₂ was released in the atmosphere and whether supply options of Carbon Majors were aligned with demand levels consistent with various scenarios of carbon constraint; the ethical aspects of the Carbon Majors' responsibility for climate change; climate litigation cases and their relevance to the National Inquiry; European corporate influence on climate policy and action; attribution science of climate change (modelling) and assessing these changes with future climate simulations; and a model that contains estimates of the quantities, locations, and nature of the world's oil, gas, and coal reserves and resources.
- c. For its part, the Honorable Commission invited seven (7) experts: Ms. Joni Pegram, Mr. Adam Matthews, Dr. Jaap Spier, Ms. Lene Wendland, Mr. Ben Schachter, Dr. Swenja Surminski, and Ms. Linda Siegele as its resource persons.

3.19. The **final and sixth public hearings** were conducted in the Honorable Commission's Inquiry Hall on 11-12 December 2019. A total of nine (9) resource persons concluded petitioners' presentation:

- a. Three (3) community witnesses were presented to share their stories as typhoon survivors (mother and youth) who lost several loved ones due to tropical storm *Sendong* (“Washi”) and a Disaster Risk Reduction officer, who experienced super typhoon Haiyan and how Camotes Island in Cebu achieved zero casualty. Ms. Amalia Bahian, Ms. Monica Piquero-Tan, and Ms. Honeylyn Gonzales were presented as community witnesses.
- b. Six (6) expert witnesses discussed the following topics: human rights responsibilities in relation to climate change; the Honorable Commission’s role in this global issue; the concept of a “just transition” and the corporate requirements of Carbon Majors to ensure that they act responsibly in relation to climate change; the health impacts of climate change and the development of health adaptation strategy by the State in relation to climate change; how the United Nations Guiding Principles provide an analytical lens on what may constitute adequate human rights protection from climate harms in the Philippines, including the role of businesses in addressing these harms and the identification of any policy gaps that should be addressed by the Philippine government; and Climate Compensation Act and principles of liability for large-scale greenhouse gas emitters.
- c. Mr. Kumi Naidoo, Ms. Laura Gyte, Dr. Glenn Roy Paraso, former Chair of this Honorable Commission Ms. Loretta Ann “Etta” Rosales, and Dr. Margaretha Wewerinke-Singh testified as expert resource persons for the petitioners. Mr. Naderev “Yeb” Saño, one of the petitioners, spoke about his personal concerns and insights and, as a former Commissioner of the Climate Change Commission, he was similarly presented as an expert resource person.

3.20. While not an official part of this national inquiry, on 16 January 2019, Greenpeace Netherlands invited the Honorable Commission for expert presentations on the topic “*Corporate action on human rights and climate change: a deep dive into Shell’s actions and policies*” held at Nyenrode Business University in Breukelen, Netherlands:

- a. The following expert resource persons made their presentations on the aforementioned topic: Mr. Greg Muttitt, Ms. Laurie van

de Burg, Ms. Jeanette van der Woude, Mr. Barnaby Pace, Ms. Kathryn Mulvey, and Mr. Carroll Muffett.⁵⁴

3.21. On 26 June 2019, the Honorable Commission issued a *Notice* giving the petitioners until 05 July 2019 to file their formal offer of evidence, and until 31 August 2019 to submit their memorandum.

3.22. On 04 July 2019, petitioners filed an *Ex-Parte Motion for Extension* dated 03 July 2019 requesting that they be given an additional fifteen (15) days each within which to file the two (2) pleadings, specifically on **20 July 2019** for the formal offer of evidence and **15 September 2019** for the memorandum.

3.23. On 05 July 2019, the Honorable Commission issued a *Notice* granting petitioners' *Ex-Parte Motion for Extension* to file the two pleadings on the aforementioned dates.

3.24. On 19 July 2019, petitioners filed their *Ex-Parte Formal Offer of Documentary Exhibits and Manifestation*.

3.25. On 13 September 2019, petitioners filed an *Ex-Parte Manifestation and Additional Formal Offer of Documentary Exhibit* requesting the admission in evidence of Exhibit "TTTT-A" to "TTTT-A-3," which was inadvertently omitted in the *Ex-Parte Formal Offer of Documentary Exhibits and Manifestation* filed on 19 July 2019.

3.26. Similarly, on 13 September 2019, petitioners filed an *Ex-Parte Motion for Extension* asking for additional five (5) days from 15 September 2019 or until **20 September 2019** to file their memorandum. Hence, this *Memorandum for the Petitioners* was timely filed.

⁵⁴ Their presentations are available at <https://www.greenpeace.org/philippines/press/1237/the-climate-change-and-human-rights-petition/> (last accessed on 12 September 2019).

IV

THE HONORABLE COMMISSION'S AUTHORITY TO INVESTIGATE AND GRANT THE RELIEFS PRAYED FOR BY THE PETITIONERS

The Honorable Commission's authority to investigate human rights violations and/or threats thereof is unequivocal and explicitly mandated by no less than the *1987 Philippine Constitution*, the Honorable Commission's *Omnibus Rules*, and various international human rights and environmental agreements to which the Philippines is a signatory

4.1. Respondents are domiciled in many countries around the world, from the United States to South Africa to Australia. The corporate groups' operations take place in an even greater number of countries. The products are sold and burned in an even larger number of countries. Yet the harm at issue in this National Inquiry is occurring here, in this country, our home, the Philippines.

4.2. The **authority** of the Honorable Commission to conduct this National Inquiry is — and should be — a **settled issue** considering its pronouncements during the **preliminary conference** of the parties held on 11 December 2017⁵⁵ and the **opening of the first public hearings** on 27 March 2018,⁵⁶ and in its closing press release.⁵⁷ The following pronouncements during the **preliminary conference**⁵⁸ are enlightening—

In accordance with the well-established doctrine of *compétence de la compétence*, it is for the Commission to determine the scope of its own jurisdiction.

Most compellingly, the Commission's jurisdiction to adopt its Omnibus Rules of Procedure has not been the subject of domestic legal challenge. Accordingly, the Omnibus Rules in their current form are demonstrably intra

⁵⁵ See Opening Remarks of the Focal Chairman of the NICC, Commissioner Roberto Eugenio T. Cadiz, TSN dated 11 December 2017, pp. 9-12.

⁵⁶ See Opening Remarks of Chairman Jose Luis Martin C. Gascon, *Transcript of Proceedings: National Inquiry on the Impact of Climate Change on the Human Rights of the Filipino People, and the Responsibility of the "Carbon Majors," if any, First Hearing, March 27 to 28, 2018*, pp. 2-5 (hereinafter, "TSN dated 27-28 March 2018"), also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-March-27-to-28-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁵⁷ Commission on Human Rights (CHR) Press Release (13 December 2018), *CHR concluded landmark inquiry on the effects of climate change to human rights; expects to set the precedent in seeking climate justice*, available at https://essc.org.ph/content/wp-content/uploads/2019/03/CHR_concluded_landmark_inquiry_on.pdf (last accessed on 12 September 2019).

⁵⁸ TSN dated 11 December 2017, *supra* note 55.

vires as a matter of Philippines law for the purposes of the current Inquiry.

Furthermore, the Commission's jurisdiction under the Constitution to consider breaches of economic, social and cultural rights in exercising its functions is beyond dispute. Sections 18(6) and 18(7) give the Commission a very broad mandate to, respectively, recommend to Congress effective measures to promote human rights and to monitor the Philippine Government's compliance with international treaty obligations on human rights. In exercising both of these functions, the Commission is free to determine the manner in which it will inform itself to make such recommendations or to conduct such monitoring, including by conducting a public inquiry.

X X X

The Supreme Court has also maintained this holistic interpretation of human rights in domestic law, recognizing socio-economic rights as justiciable.

X X X

Subsequent jurisprudence has maintained both the self-executing character of the right to a balanced and healthful ecology and the correlative obligations to which this right attach.

In sum, the legislative provisions on the Commission's mandate and their interpretation, in line with established Philippine Supreme Court's case law, leave no doubt over the Commission's jurisdiction to hear the petition pursuant to each, or any, of its investigation, recommendatory or monitoring functions.⁵⁹

4.3. In their *Consolidated Reply* dated 10 February 2019, petitioners extensively discussed and refuted respondents' objections to the Honorable Commission's authority to conduct the investigation against them. All the arguments and discussion contained in said *Consolidated Reply* relative thereto are hereby adopted and incorporated in this memorandum to avoid needless duplication.

4.4. Significantly, petitioners' position on this issue of authority to investigate and the Honorable Commission's action was similarly carried in the various *amicus curiae* briefs submitted in support of the petitioners and further echoed in the *Joint Summary of the Amicus Curiae* dated 19 March 2018 submitted by different *amici* experts.⁶⁰

⁵⁹ *Id.*

⁶⁰ See *Joint Summary of the Amicus Curiae*, *supra* note 50, pp.11-20.

4.5. Therefore, it has been clearly established that the Honorable Commission correctly pursued this investigation in pursuit of its constitutionally-mandated duty to the Filipino people.

**The issues and reliefs prayed for in the
Petition are well within the Honorable
Commission's investigative function**

4.6. At the risk of sounding repetitious, the authority of the Honorable Commission to conduct an investigation against respondents on their responsibility for human rights violations or threats thereof resulting from the impacts of climate change and ocean acidification is clearly mandated in ***Section 18, Article XIII of the 1987 Philippine Constitution***, which explicitly empowers it to:

(1) **Investigate**, on its own or on complaint by any party, **all forms of human rights violations involving civil and political rights;**

x x x

(6) **Recommend to the Congress** effective measures to promote human rights and to provide for compensation to victims of violations of human rights, or their families;

(7) **Monitor the Philippine Government's compliance with international treaty obligations on human rights;**

x x x.⁶¹

4.7. As explained in petitioners' *Consolidated Reply* dated 10 February 2017, the issues and reliefs prayed for in the *Petition* are proper under the Honorable Commission's mandate to conduct a national public inquiry. "The legal meaning of 'investigate' is '(t)o follow up step by step by patient inquiry or observation; to trace or track; to search into; to examine and inquire into with care and accuracy; to find out by careful inquisition; examination; the taking of evidence; a legal inquiry; to inquire; to make an investigation (...),'⁶² A human rights investigation is a process of determining the particular human right violation, identifying the composite elements of the particular right, and making recommendations to protect the particular right."⁶³

⁶¹ Section 18, Article XIII of the 1987 Philippine Constitution.

⁶² *Cariño vs. CHR*, G.R. No. 96681, 02 December 1991.

⁶³ UN Office of the High Commissioner for Human Rights (2001), *Training Manual on Human Rights Monitoring*, available at <https://www.ohchr.org/Documents/Publications/training7Introen.pdf> (last accessed 06 September 2019).

4.8. The Asia Pacific Forum of National Human Rights Institution (NHRI) -- one of the *amici* experts supporting the petitioners -- and the Raoul Wallenberg Institute of Human Rights and Humanitarian Law describe a national inquiry, in particular, as follows:

A national inquiry is a good means to address the most complex human rights situations that NHRIs confront. Whereas NHRIs may conduct public hearings into individual complaints, that process is quite narrow and confined to the specific facts of the particular complaints. A national inquiry, by contrast, addresses patterns of violation revealed by large numbers of complaints, or other information addressed to the NHRI, that require a comprehensive approach.

National inquiries address situations of human rights violations that affect the entire country or a significant part of it. This is a space dimension. There is also a time dimension. A national inquiry is a good means to handle an historic pattern of human rights violations, such as practices that have become embedded over many years or decades in the history and culture of the country and that are difficult to investigate on the basis of isolated individual actions.

The complexity of the situation being investigated requires that any response be undertaken by a significant number of different actors, not only the Government. The national inquiry process enables the identification of all those who have some past, present or future role in relation to the situation or some responsibility for its causes or consequences. **It therefore permits findings and recommendations to be made in relation to all those who share responsibility.**⁶⁴ (Emphasis supplied)

4.9. As correctly pointed out by the *amicus curiae* expert, Environmental Law Alliance Worldwide (ELAW), in its submission to the Honorable Commission dated 07 November 2016, according to **Article XIII, Sections 18(1) and (3) of the 1987 Philippine Constitution**, “the Honorable Commission has powers to investigate ‘all forms of human rights violations involving civil and political rights’ and broad authority to ‘[p]rovide appropriate legal measures for the protection of human rights of all persons within the Philippines, as well as Filipinos residing abroad, and provide for preventive measures and legal aid services to the underprivileged whose human rights have been violated or need protection.”⁶⁵

⁶⁴ Asia Pacific Forum of National Human Rights Institutions and Raoul Wallenberg Institute of Human Rights and Humanitarian Law (September 2012), *Manual on Conducting a National Inquiry into Systemic Patterns of Human Rights Violations*, available at <https://www.asiapacificforum.net/resources/manual-conducting-a-national-inquiry/> (last accessed 12 September 2019).

⁶⁵ See *Amicus Curiae* submission by ELAW, *supra* note 36, p. 6.

4.10. To remove further doubt on the matter, the Honorable Commission highlighted the following during the **opening of the public hearings** on 27 March 2018:

... What the CHR can and does have the ability to do is to investigate and monitor matters concerning the civil, political, economic, social, and cultural rights of persons, with a particular focus and concern on those who often are unable to protect themselves or to assert their rights, such as those who belong to the marginalized vulnerable sectors of our society.

That is to say we may be able, as a Commission, to look into the facts and circumstances of an event or series of events and, after due consideration and deliberation, make a determination utilizing all the relevant expertise at our disposal, whether there has occurred a human rights violation and to consider who the perpetrators might be.

For this purpose and in this instance, the Commission has decided to give due course to this petition and to conduct a National Inquiry akin to other national inquiries that we have already regularly conducted with regards [*sic*], for example, to indigenous people's rights and on the implementation of the Reproductive Health Law's impact on women's rights.⁶⁶

4.11. The remedies sought by the petitioners are, therefore, entirely appropriate, including the request that respondent Carbon Majors submit plans indicating how these violations or threat of violations will be eliminated, remedied, and prevented in the future. The request that other States, including the States of incorporation of the respondent Carbon Majors, be called upon "to take steps to prevent, remedy, or eliminate human rights violations or threats of violations resulting from the impact of climate change" is also entirely reasonable.⁶⁷ As *amicus* expert Sara Seck puts it, "[i]ndeed, it is in keeping with the duty of international cooperation that is essential to solving the climate crisis."⁶⁸

4.12. Petitioners are not asking the Honorable Commission to go beyond its constitutional mandate; rather, it should give life and breadth to its investigatory, recommendatory, and monitoring powers by making actual findings that correctly reflect the pieces of evidence established during the entire proceeding.

⁶⁶ Opening Remarks of Chairman Jose Luis Martin C. Gascon, TSN dated 27-28 March 2018, pp. 3-4, *supra* note 56.

⁶⁷ Seck, S., *Amicus Submission*, dated 12 November 2016, *supra* note 43, p. 7.

⁶⁸ *Id.*

V

MATERIAL FACTS AS ESTABLISHED BY EVIDENCE

A. Basic climate science and understanding climate change in a global context

5.1. There is an overwhelming consensus among scientists that climate change endangers both humanity and nature, and that human activity, primarily the burning of fossil fuels, is causing climate change.⁶⁹ The scientific consensus that climate change is anthropogenic in origin has been established through the work of the Intergovernmental Panel on Climate Change (“IPCC”) and documented in its various reports.⁷⁰ This position has been adopted by multiple scientific and government agencies.⁷¹ **There is no room for further debate on this.**

5.2. Climate change results from excess levels of GHGs in the atmosphere, particularly CO₂ derived from the burning of fossil fuels (coal, oil and natural gas), and from changes in land use. These emissions are changing the Earth’s climate and destabilizing the climatic system. Climate change impacts are already affecting and injuring humans and natural systems, causing loss of life and pushing species towards extinction. The window to reverse this dangerous situation escalating is rapidly closing.⁷²

5.3. While there are natural fluctuations or variabilities in global temperature observations, the recent rapid increase in temperature is unprecedented in known temperature data. Atmospheric concentrations of CO₂ have risen slightly less than 50% since the Industrial Revolution, from 280 parts per million (ppm) to more than 410 ppm.⁷³

⁶⁹ John Cook *et al.*, *Quantifying the Consensus on Anthropogenic Global Warming in the Scientific Literature*, available at <https://iopscience.iop.org/article/10.1088/1748-9326/8/2/024024> (last accessed on 12 September 2019); See also, Watts, J. (24 July 2019), ‘No doubt left’ about scientific consensus on global warming, *say experts*, available at <https://www.theguardian.com/science/2019/jul/24/scientific-consensus-on-humans-causing-global-warming-passes-99> (last accessed on 12 September 2019). “There was 99% scientific consensus in 2011 that humans are causing global warming,” quoting John Cook, the lead author of *Quantifying the consensus on anthropogenic global warming in the scientific literature*.

⁷⁰ IPCC, 2014: *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland (hereinafter, “IPCC 2014 Climate Change 2014 Synthesis Report”), available at https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf (last accessed on 12 September 2019).

⁷¹ NASA, *Scientific consensus: Earth’s climate is warming*, available at <https://climate.nasa.gov/scientific-consensus/> (last accessed on 12 September 2019).

⁷² *Ibid.*

⁷³ U.S. National Oceanic and Atmospheric Administration (NOAA), Earth System Research Laboratory Global Monitoring Division; Dlugokencky, E. and Tans, P. *Trends in Atmospheric Carbon Dioxide* (as of 05 August 2019), available at www.esrl.noaa.gov/gmd/ccgg/trends/ (last accessed on 12 September 2019). See also: IPCC (2018) *Summary for Policymakers*, Sec. B.1. p. 7 [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)] (hereinafter, “IPCC 2018 Summary for Policymakers”), available at

5.4. Over the last 150 years, the atmospheric levels of CO₂ have increased exponentially. Global temperature is rising, but depending on the emissions pathway followed, it has only reached a fraction of its eventual maximum. Ultimately, global mean temperature change in response to emitted CO₂ will be much greater, involving *positive feedback loops*, which can accelerate global warming.⁷⁴

5.5. The accelerating and self-reinforcing effects of *positive feedback loops* can lead to irreversible climate *tipping points* being reached. Climate tipping points refer to critical thresholds that, once reached, create non-linear, unpredictable, and irreversible changes to the climate system.⁷⁵

5.6. As a result, a small change within the global climate system can transform relatively stable climate system to a new, but also relatively stable, climatic state. *Tipping elements* describe the large-scale components of the Earth System which may be subject to tipping points. **Figure 1** by Steffen *et al.* below shows the identified possible *tipping elements*, together with their potential to activate other tipping elements, in a domino-like cascade that can take the Earth System to even higher temperatures (*Tipping Cascades*).⁷⁶

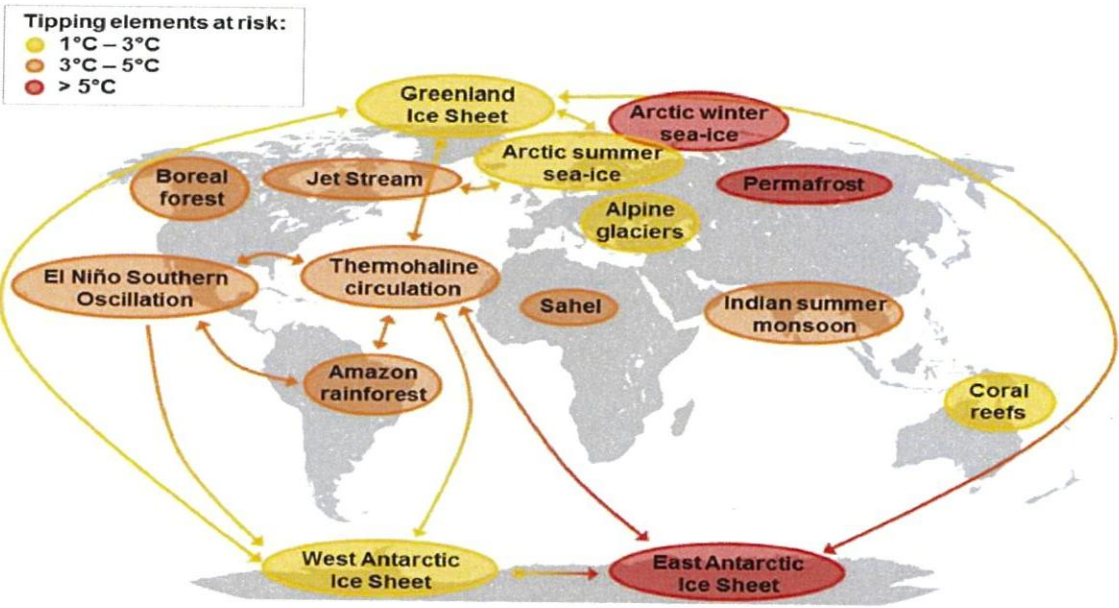


Figure 1: “Global map of potential tipping cascades. The individual tipping elements are color-coded according to estimated thresholds in global average surface temperature (tipping points) (12, 34). Arrows

https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf, (last accessed on 12 September 2019).

⁷⁴ U.S. Global Change Research Program, Wuebbles, D.J., et al. 2017: *Climate Science Special Report: Fourth National Climate Assessment, Volume I*, U.S. Global Change Research Program, Washington, DC, USA, p. 470, available at <https://science2017.globalchange.gov/chapter/2/> (last accessed on 12 September 2019); See also: NASA, Global Climate Change, *The Study of Earth as an Integrated System*, available at https://climate.nasa.gov/nasa_science/science/ (last accessed on 12 September 2019).

⁷⁵ U.S. Global Change Research Program, Wuebbles, D.J., et al. 2017: *Climate Science Special Report*, *supra* note 74, Chapter 15.

⁷⁶ Steffen, W., et. al. (14 August 2019), *Trajectories of the Earth in the Anthropocene*, PNAS 115 (33), p. 8354, available at <https://www.pnas.org/content/115/33/8252/tab-article-info> (last accessed on 12 September 2019).

show the potential interactions among the tipping elements based on expert elicitation that could generate cascades. Note that, although the risk for tipping (loss of) the East Antarctic Ice Sheet is proposed at $>5^{\circ}\text{C}$, some marine-based sectors in East Antarctica may be vulnerable at lower temperatures (35–38).⁷⁷

5.7. Even if GHG emissions are dramatically reduced now, some effects are already locked in. This is because it can take from days to thousands of years for GHGs to be removed from the atmosphere and parts of the earth system, particularly the ocean, wherein it takes hundreds of years to respond to GHGs and aerosol emissions.⁷⁸

B. IPCC reports as material facts

5.8. The IPCC assessment and special reports provide the basis for the climate science consensus. The IPCC assesses thousands of scientific papers for each report published to inform policymakers where there is “agreement in the scientific community on topics related to climate change, and where further research is needed.” The IPCC does not conduct its own research, and it does not indicate what constitutes a “safe” level of warming.

5.9. The IPCC assessments and reports have been, and continue to be, key inputs into the international negotiations to tackle climate change and are drafted and reviewed in several stages, guaranteeing objectivity and transparency. The summaries for policymakers present the key findings of the special reports and are adopted by 195 state parties to the IPCC, including the Philippines.⁷⁹ **The findings in the special reports and assessments are, therefore, material facts.**

5.10. As correctly stated by ClientEarth in its *Amicus Curiae Brief* dated 21 November 2016, “[t]he [Honorable] Commission may rely on the findings of the IPCC, including the Fifth Assessment Report, as a fact.”⁸⁰ The District Court of the Hague in the 2015 case entitled, “*Urgenda Foundation v. State of the Netherlands*,”⁸¹ took this approach and held that:

The UN Climate Change Convention also made provision for the establishment of the IPCC as a global knowledge institute. The IPCC reports have bundled the knowledge of hundreds of scientists and to a great extent represent the current climate science. The IPCC is also an

⁷⁷ *Ibid.*

⁷⁸ IPCC 2014, *Climate Change 2014 Synthesis Report*, *supra* note 70.

⁷⁹ IPCC, Press Release (08 October 2018), *Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments*, available at <https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/> (last accessed on 06 September 2019).

⁸⁰ ClientEarth’s *Amicus Curiae Brief*, *supra* note 37.

⁸¹ See Exhibit “KKKKKKKK” to “KKKKKKKK-54,” *Decision of the Hague District Court: Urgenda Foundation v. The State of Netherlands (Ministry of Infrastructure and the Environment Case No: C/09/456689/ HA ZA 13-1396*, dated 24 June 2015; and Exhibit “LLLLLLLL” to “LLLLLLLL-19” *Decision of the Hague Court of Appeal: The State of the Netherlands v. Urgenda Foundation Case No: C/09/456689/ HA ZA 13-1396*, dated 09 October 2018.

intergovernmental organization. The IPCC's findings serve as a starting point for the COP decisions, which are taken by the signatories to the UN Climate Change Convention during their climate conferences. Similarly, the Dutch and European decision-making processes pertaining to the climate policies to be pursued are also based on the climate science findings of the IPCC. The court – and also the Parties – therefore considers these findings as facts.⁸²

5.11. Notably, respondent Chevron, through one of its lawyers, Avi Garbow, appears to have admitted that IPCC findings are facts in an article about climate lawsuits:

“Chevron is not going to be engaging in a debate on climate change science,” said Avi Garbow, co-chairman of the Environmental Litigation and Mass Tort Practice Group at Gibson, Dunn & Crutcher LLP and a Chevron lawyer. He’s also a former official in the Obama administration who defended the Clean Power Plan as general counsel to then-U.S. EPA chief Gina McCarthy.

The company will “anchor its presentation” on the Fifth Assessment Report from the U.N. Intergovernmental Panel on Climate Change (IPCC), issued in 2014, he said on a call with reporters Monday.

“Chevron’s neither going to overstate nor understate degrees of confidence. Chevron’s simply going to present the conclusions of the IPCC because Chevron thinks that’s the best and the most accurate way of responding to the court’s tutorial request,” Garbow said.

San Francisco and Oakland, along with several counties in California, are suing Chevron, BP PLC, ConocoPhillips, Exxon Mobil Corp. and Royal Dutch Shell PLC for allegedly downplaying the threat of climate change. The local governments claim that the oil majors knew years ago that the emissions related to their products could cause sea-level rise and contribute to other damages.⁸³ (Emphasis supplied)

5.12. The IPCC issues comprehensive Assessment Reports about knowledge on climate change, its causes, potential impacts and response options, the latest one being the *IPCC Fifth Assessment Report* (“IPCC AR5”) and the next one being the *Sixth Assessment Report* (“IPCC AR6”).

⁸² *Ibid.*

⁸³ Mulkern, A. (21 March 2018), *Chevron Will Stick to IPCC Findings in Landmark Climate Change Trial*, available at <https://www.scientificamerican.com/article/chevron-will-stick-to-ipcc-findings-in-landmark-climate-change-trial/> (last accessed on 12 September 2019).

5.13. The *Joint Summary of the Amicus Curiae* dated 19 March 2018, citing the *IPCC AR5*, succinctly summarized the projected impacts of anthropogenic climate change with regard to temperature increase, precipitation and water resources, sea-level rise, impaired ecosystems, effects on buildings, infrastructures, and services, and expanding disease vectors.⁸⁴

5.14. The *2014 IPCC AR5* states the following key material facts, as summarized by the *Joint Summary of the Amicus Curiae*:

Temperature Increase: Global average surface temperatures are likely to increase 1.5°C to 2.3°C above the 1850–1900 period by 2050, and temperatures could increase by more than 4°C by 2081–2100 if governments and business do not undertake concerted efforts to mitigate GHG emissions. There will be substantial increases in temperature extremes by the end of the twenty-first century, resulting in increasingly frequent unusually hot days and heat waves.

Precipitation and Water Resources: Precipitation will increase in intensity in particular regions, resulting in a projected increase in flood hazards in these regions. Climate change is likely to increase the frequency of meteorological, agricultural, and short hydrological droughts. There will be significant reductions in surface water and groundwater resources in most dry subtropical regions, thus intensifying competition for water and affecting regional water, energy, and food security. This will be driven by, inter alia: (i) reduced rainfall, (ii) reduced snowpack, resulting in less snowmelt supplying rivers and streams; and (iii) increased evapotranspiration and higher temperatures, which in turn further increase the atmospheric demand for moisture from surface water and soils. Sea level rise will also threaten freshwater supply in coastal areas by causing saltwater inundation of surface and ground water.

Sea Level Rise: The IPCC projects global mean sea levels to rise by 0.17–0.38 meters by the mid-century (2046–2065) and by 0.26–0.82 meters by the end of the century (2081–2100), as compared with a 1986–2005 baseline. Coastal systems and low-lying areas will increasingly experience adverse impacts such as submergence, flooding, erosion, and saltwater intrusion as a result. Increases in precipitation and coastal storms will contribute to these harmful impacts.

Impaired Ecosystems: Even under intermediate emissions scenarios, there is a “high risk” that climate change will cause “abrupt and irreversible regional-scale change in the composition, structure, and function of terrestrial and freshwater ecosystems” in this century. Many plant and animal species will be unable to migrate or otherwise adapt quickly enough to changing climatic

⁸⁴ *Joint Summary of the Amicus Curiae*, *supra* note 50, pp. 33–34 (in-text citations omitted).

conditions. Climate change will “reduce the populations, vigor, and viability” of many species, especially those with spatially restricted populations, and will increase the extinction risk for many species. Climate change-driven “forest dieback,” which has already been observed in many regions globally, will have potentially significant impacts on climate, biodiversity, water quality, wood production, and livelihoods. The composition of coastal and estuarine ecosystems will be altered by sea level rise, changes in precipitation and river flow, increased water temperatures, and ocean acidification, and this will contribute to a decline in biodiversity and ecosystem productivity along coastlines. Climate change is already altering the physical, chemical, and biological properties of marine ecosystems, with the shift in distribution of many fish and invertebrates poleward and/or toward deeper, cooler waters, carrying serious implications for marine productivity and food security in tropical areas.

Effects on Buildings, Infrastructure, and Services:

Climate change “will have profound impacts on a broad spectrum of city functions, infrastructures, and services and will interact with and may exacerbate many existing stresses.” For example, extreme weather events and sea level rise will damage and destroy buildings and infrastructure, particularly on coastlines. Rising temperatures and heavy precipitation will adversely affect critical transportation, water, and electric infrastructure in many areas. Decreases in precipitation and freshwater resources will pose a major challenge for the management of water supply, irrigation systems, and hydroelectric dams.

Expanding Disease Vectors: Increases in heavy rain and temperature will increase the risk of vector-borne diseases, such as malaria and dengue, in many parts of the world.⁸⁵ (Emphasis supplied)

5.15. In addition to the Assessment Reports, the IPCC also produces Special Reports, which are an assessment on a specific issue.⁸⁶ As part of the decision to adopt the *Paris Agreement*, the IPCC was invited to produce in 2018 a Special Report on global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways.⁸⁷

5.16. The IPCC accepted the invitation, adding that the Special Report would look at these issues in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. The *IPCC Report on Global Warming of 1.5°C* (“IPCC SR 1.5”) is the first in a series of Special Reports to be produced in the AR6 cycle (to be released in 2021-2022).

⁸⁵ *Joint Summary Amicus Brief*, *supra* note 50, pp. 33-34, citing *IPCC 2014 AR5 Synthesis Report*

⁸⁶ IPCC Reports, <https://www.ipcc.ch/reports/>, (last accessed on 12 September 2019).

⁸⁷ IPCC (2014), *Climate Change 2014 Synthesis Report*, *supra* note 70.

5.17. In August 2019, the IPCC released the *Special Report Climate Change and Land* (SRCCL) and, in September 2019, it will publish the *Special Report on Ocean and Cryosphere in a Changing Climate* (forthcoming).⁸⁸

5.18. An analysis of the **2018 IPCC SR 1.5** elicits the following key material facts:

5.18.1. “Human activities are estimated to have caused approximately 1.0°C of global warming.”⁸⁹ Analyzing the *IPCC SR 1.5* shows that a 2°C temperature rise is much more dangerous than initially considered at the time that the *Paris Agreement* was signed.⁹⁰

5.18.2. “Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate.”⁹¹ This 0.5°C rise will increase widespread impacts, risks, and losses, including “warming of extreme temperatures (...), increases in frequency, intensity, and/or amount of heavy precipitation (...), and an increase in intensity or frequency of droughts (...),”⁹² depending on the region.

5.18.3. A 1.5°C rise above pre-industrial levels could be enough to destabilize Arctic sea-ice, decline warm water coral reefs from 70-90%, increase the amount of damage to many ecosystems, drive the loss of coastal resources, and reduce productivity of fisheries and aquaculture.⁹³

5.18.4. Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase significantly with global warming of 1.5°C and increase still further with a 2°C rise in temperature.⁹⁴

5.18.5. The *IPCC SR 1.5*’s 4 scenarios for GHG reductions (called pathways: P1, P2, P3, and P4) indicate that rapid, large-scale emissions reductions, together with natural carbon sequestration, are needed to meet either the *Paris*

⁸⁸ IPCC Reports, available at <https://www.ipcc.ch/reports/> (last accessed on 12 September 2019).

⁸⁹ *IPCC (2018) Summary for Policymakers*, Sec. B.1. p. 7 [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)] (hereinafter, “*IPCC 2018 Summary for Policymakers*”), available at https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf, (last accessed on 12 September 2019).

⁹⁰ *IPCC (2018) Summary for Policymakers*, *supra* note 89, Sec. B.1., p. 7.

⁹¹ *Id.*, Sec. A.1., p. 4.

⁹² *Id.*, Sec. B.1.1, p. 7.

⁹³ *Id.*, Sec. B.4.

⁹⁴ *Id.*, Sec. B.5.

Agreement's temperature goals or more stringent science-based climate recovery targets, in scenarios with limited reliance on Carbon Dioxide Removal (CDR), such as in P1.⁹⁵

5.18.6. The *IPCC SR 1.5* shows that choosing a pathway like P1 that limits global warming to 1.5°C with no or limited overshoot results in lesser impacts and fewer associated challenges as compared to relying on overshoot trajectories outlined in pathways 3 and 4 of the *IPCC SR 1.5*. "Reversing warming after an overshoot of 0.2°C or larger during this century would require upscaling and deployment of CDR at rates and volumes that might not be achievable given considerable implementation challenges."⁹⁶

5.18.7. Delayed action, therefore, comes with more risks and less benefits, given that (CDR) deployed at scale is unproven and comes with many barriers, and remains "subject to multiple feasibility and sustainability constraints."⁹⁷ "The challenges from delayed actions to reduce greenhouse gas emissions include the risk of cost escalation, lock-in in carbon-emitting infrastructure, stranded assets, and reduced flexibility in future response options in the medium to long-term."⁹⁸ The *IPCC SR 1.5* shows that the faster emissions are cut, the greater the reduction in warming and related risks and costs.⁹⁹

5.18.8. Selecting such a scenario (P1) also has benefits for sustainable development and the sustainable development goals (SDGs), while living standards in the Global South rise.¹⁰⁰ "1.5°C pathways that include low energy demand (e.g., see P1 in Figure SPM.3a and SPM.3b), low material consumption, and low GHG-intensive food consumption have the most pronounced synergies and the lowest number of trade-offs with respect to sustainable development and the SDGs."¹⁰¹

5.18.9. More specifically, **to meet the 1.5°C goal of the *Paris Agreement*, global CO₂ emissions would need to be reduced by 58% by 2030 and reach net zero by around 2050 at the latest**, with substantial reductions in other GHGs compared to 2010 levels, based on the P1 pathway.¹⁰²

⁹⁵ *Joint Summary of the Amicus Curiae Briefs*, *supra* note 50, p. 9.

⁹⁶ *IPCC (2018) Summary for Policymakers*, *supra* note 89, Sec. D1.2.

⁹⁷ *Id.*, Sec. C3.

⁹⁸ *Id.*, Sec. D1.3.

⁹⁹ Greenpeace Southeast Asia. (2018), *Holding Your Government Accountable for Climate Change: A People's Guide*, p. 68, available at https://storage.googleapis.com/planet4-international-stateless/2018/12/4fdd4d8a-peoples_guide_fnl_2.pdf (last accessed 12 September 2019).

¹⁰⁰ *IPCC (2018) Summary for Policymakers*, *supra* note 89, Figure SPM.3b, p. 33.

¹⁰¹ *Id.*, Sec. D4.2.

¹⁰² The P1 pathway is the Low Energy Demand scenario by Grubler *et al.* (2018), which assumes oil use to be almost halved (-46 %) and gas use to decline by about one third (-37%) between 2020 and 2030. See:

5.18.10. By 2030, overall coal consumption would need to be reduced by at least two thirds (78%),¹⁰³ and by 2050 to almost zero coal used (97% reduction), compared to 2010 levels.¹⁰⁴

5.18.11. Similarly, oil and gas will need to decline rapidly. In the scenario that does not rely on CDR technologies (P1 pathway),¹⁰⁵ **global oil consumption would need to decline by 37% by 2030 from 2010 levels and gas by 13%**, which correspond to even larger reductions from current levels.¹⁰⁶

5.18.12. Moreover, “[p]athways limiting global warming to 1.5°C with no or limited overshoot (such as P1) would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems.” These will be “enabled by an increase of adaptation and mitigation investments, policy instruments, the acceleration of technological innovation and behavior changes.”¹⁰⁷ Analyzing the *IPCC SR 1.5* shows that successful approaches will be those that try to solve mitigation, adaptation, and development needs in an integrated and inclusive way that protects, respects, and fulfills human rights.

5.18.13. Finally, adaptation to climate change is necessary and essential and requires assessing vulnerability and possible impacts, building resilience, and planning for the consequences.¹⁰⁸

5.19. While the *IPCC SR 1.5* shows that limiting the temperature increase to 1.5°C instead of 2°C would reduce some of the risks and impacts substantially, **even at 1.5C of warming, the impacts will be significant and dangerous. A further half degree would lead to some irreversible damages.** More specifically (see **Figures 2 and 3** below):

Grubler, A., et al. (2018), *A low energy demand scenario for meeting the 1.5°C target and sustainable development goals without negative emission technologies*, available at <https://www.nature.com/articles/s41560-018-0172-6> (last accessed on 12 September 2019). See also: *IPCC (2018) Summary for Policymakers*, *supra* note 89, Figure SPM.3b, p. 33.

¹⁰³ *IPCC (2018) Summary for Policymakers*, *supra* note 89, Figure SPM.3b, p. 33, median value for coal reductions from 2020 to 2030.

¹⁰⁴ *Id.*, Figure SPM.3b, p. 33.

¹⁰⁵ *Id.*, Figure SPM.3b.

¹⁰⁶ The P1 pathway is the Low Energy Demand Scenario, which assumes oil use to be almost halved (-46%) and gas use to decline by about one third (-37%) between 2020 and 2030; See Grubler, A., et al. (2018), *supra* note 102.

¹⁰⁷ *IPCC (2018) Summary for Policymakers*, *supra* note 89, Sec. D5

¹⁰⁸ *Joint Summary of the Amicus Curiae Briefs*, *supra* note 50, p. 10.

How the level of global warming affects impacts and/or risks associated with the Reasons for Concern (RFCs) and selected natural, managed and human systems

Five Reasons For Concern (RFCs) illustrate the impacts and risks of different levels of global warming for people, economies and ecosystems across sectors and regions.

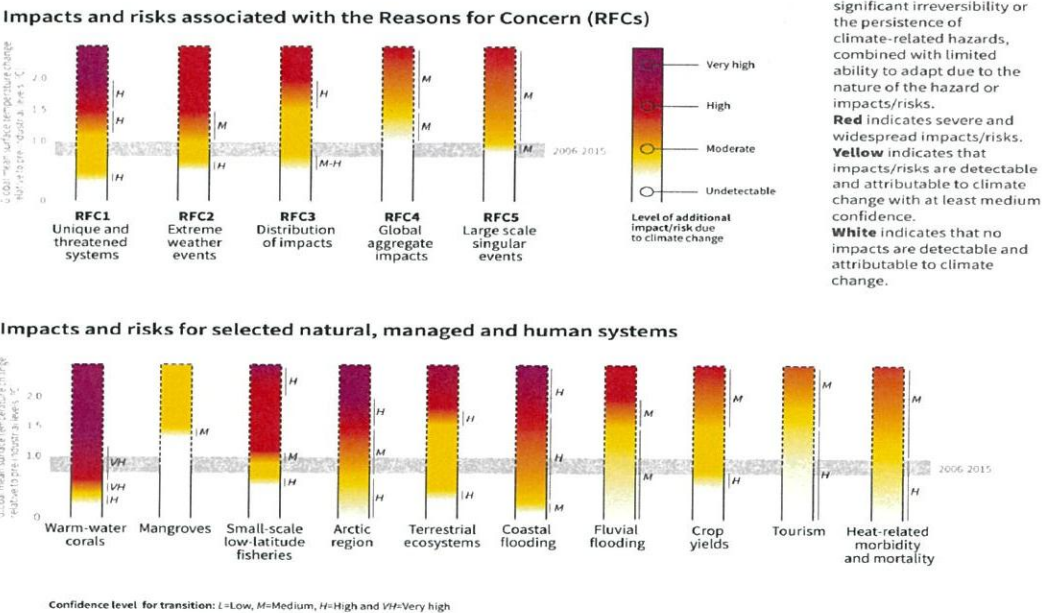


Figure 2: How the level of global warming affects impacts and/or risks associated with the Reasons for Concern (RFCs) and selected natural, managed, and human systems¹⁰⁹

¹⁰⁹ IPCC 1.5°C SR SPM, available at <https://www.ipcc.ch/sr15/graphics/> (last accessed on 12 September 2019).

Impacts and risks of 1.5°C vs. 2°C		Ref
Ice sheet tipping points	Greenland and Antarctic instabilities, that could lead to irreversible melting and multi-meter sea-level rise, could be triggered at around 1.5°C - 2°C.	SPM B2.2 TS-12
Arctic	Risk of having a sea ice free Arctic summer could be limited into once per century, compared to once per decade in 1.5°C vs 2°C.	SPM B4.1
Sea-level rise	Up to 10 million less people exposed to sea-level rise risks at 1.5C vs 2C	SPM B2.1
Ocean impacts	Ocean ecosystems are already experiencing large-scale changes, with critical thresholds expected to be reached at 1.5oC and above.	TS-13
Corals	Warm water corals would lose a further 70-90% of cover at 1.5°C global warming, and 99% at 2°C.	SPM B4.2
Fisheries	With 1.5°C the decrease in global annual catch for marine fisheries is halved compared to 2°C	SPM B4.4
Ecosystem services	Important benefits for terrestrial, freshwater, and coastal ecosystems and for the preservation of their services to humans in 1.5°C vs 2°C.	SPM B3.1
Species loss & extinction	The number of species projected to lose over half of their range reduced by 50% for plants, vertebrates and 66% for insects at 1.5°C vs 2°C.	SPM B3.1
Ecosystems	The terrestrial area affected by ecosystem transformation is approximately halved at 1.5°C vs. 2°C.	TS-12
Heatwaves	Around 420 million fewer people being frequently exposed to extreme heatwaves at 1.5°C vs 2°C.	TS-11
Water scarcity	The proportion of the world population exposed to a climate-induced increase in water scarcity could be reduced by up to 50 %	SPM B5.4
Multi-sector risks & poverty	Four times more people exposed to multi-sector climate risks and vulnerable to poverty at 2°C vs 1.5°C (86-1229 million vs 24-357 million).	Table 5.1
Food system	Ten times more people exposed to lower crop yields at 2°C vs 1.5°C.	Table 3.4
Weather extremes	Substantial increases in weather extremes between 1.5°C and 2°C.	SPM B1
Permafrost	Stabilising at 1.5 °C rather than 2 °C would save approximately 1.5-2.5 million km2 of permafrost.	SPM B3.3

Figure 3: Greenpeace International’s The Moment of Truth (Key takeaways from the IPCC Special Report on 1.5°C Warming) ¹¹⁰

¹¹⁰ Greenpeace International (08 October 2018), *The Moment of Truth (Key takeaways from the IPCC Special Report on 1.5°C Warming)*, p. 2, available at https://secured-static.greenpeace.org/taiwan/Global/taiwan/planet3/documents/for_download/CE/2018-IPCC_key_takeaways.pdf (last accessed on 12 September 2019).

5.20. In addition, the statements of the **2019 IPCC Special Report on Climate Change and Land** entitled, “*Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems*” (“IPCC SRCCL”),¹¹¹ which focuses on GHGs fluxes related to land and interactions between climate change and desertification, land degradation, and food security, should also be accepted as **material facts** by the Honorable Commission.

5.21. The **2019 IPCC SRCCL** was the first IPCC report with land as a central focus since the 2000 Special Report on land use, land-use change, and forestry.¹¹² The report builds upon **IPCC SR 1.5**, the thematic assessment of the *Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES)* on Land Degradation and Restoration, the *IPBES Global Assessment Report on Biodiversity and Ecosystem Services*, and the *Global Land Outlook of the UN Convention to Combat Desertification (UNCCD)*.¹¹³

5.22. The **2019 IPCC SRCCL** presents the following key material facts:

5.22.1. “Human use directly affects more than 70% (...) of the global, ice-free land surface” and “about a quarter of the Earth’s ice-free land area is subject to human-induced.”¹¹⁴

5.22.2. The temperature over land has risen considerably more than the global average. “From 1850-1900 to 2006-2015 mean land surface air temperature has increased by 1.53°C since pre-industrial times,” compared with 0.87°C in the global mean surface temperature (“GMST”) over land and oceans.¹¹⁵

5.22.3. The likelihood, intensity, and duration of many extreme events can be significantly modified by changes in

¹¹¹ IPCC 2019, *Summary for Policymakers: Climate Change and Land*, In: *Climate Change and Land*, An IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems (hereinafter, “IPCC 2019, Summary for Policymakers: Climate Change and Land”). It is one of three special reports that the IPCC is preparing during the current Sixth Assessment Report cycle (including the SR 1.5 published in 2018 and a Special Report on Climate Change and Oceans, set to be published in September 2019), available at https://www.ipcc.ch/site/assets/uploads/2019/08/4.-SPM_Approved_Microsite_FINAL.pdf, (last accessed on 12 September 2019).

¹¹² IPCC 2000 – Watson, R., et al. Cambridge University Press, UK. p. 375, available from Cambridge University Press, The Edinburgh Building Shaftesbury Road, Cambridge CB2 2RU ENGLAND, available at <https://www.ipcc.ch/report/land-use-land-use-change-and-forestry/>, (last accessed on 12 September 2019).

¹¹³ IPCC 2019, *Summary for Policymakers: Climate Change and Land*, *supra* note 111.

¹¹⁴ *Id.* Sec. A1.1 and A1.5, p.2.

¹¹⁵ *Id.* Sec. A2.1., p. 5.

land conditions, including heat related events such as heat waves (high confidence)¹¹⁶ and heavy precipitation events.¹¹⁷

5.22.4. The CO₂ emissions from deforestation, human-induced fires, and logging remain high. The **2019 IPCC SRCCL** estimates that gross emissions from land use and land-use change (mostly from deforestation and logging) during 2007-2016 were almost 20 GtCO₂ annually.¹¹⁸

5.22.5. “Climate change has already affected food security due to warming, changing precipitation patterns, and greater frequency of some extreme events.”¹¹⁹ In many lower-latitude regions, yields of some crops (e.g., maize and wheat) have declined. Agricultural pests and diseases have already responded to climate change resulting in both increases and decreases of infestations.¹²⁰

5.22.6. Climate change creates additional stresses on land, exacerbating existing risks to livelihoods, biodiversity, human and ecosystem health, infrastructure, and food systems (high confidence).¹²¹ The stability of food supply is projected to decrease as the magnitude and frequency of extreme weather events that disrupt food chains increases.¹²²

5.22.7. “Changes in climate can amplify environmentally induced migration both within countries and across borders.”¹²³ Extreme weather and climate or slow-onset events may lead to increased displacement, disrupted food chains, threatened livelihoods, and contribute to exacerbated stresses for conflict.¹²⁴

5.22.8. Rapid reductions in GHG emissions across all sectors will reduce the negative impacts of climate change on land ecosystems and food systems. However, delaying climate

¹¹⁶ When the IPCC scientists use the terms ‘confidence’ and ‘likelihood,’ each term has a different and very specific meaning relating to levels of certainty. When scientists mention ‘confidence,’ they are referring to the degree of confidence in being correct. In the case of the IPCC where scientists are analyzing global climate, issues such as lack of observational data in certain regions, such as Africa, will affect scientists’ confidence in their findings. When scientists mention ‘likelihood’ they are referring to the probability of an event or outcome occurring. See Australian Government Department of the Environment Confidence and Likelihood IPCC Fifth Assessment Report Fact Sheet, available at <https://www.environment.gov.au> (last accessed on 12 September 2019).

¹¹⁷ IPCC 2019, Summary for Policymakers: Climate Change and Land, *supra* note 111, Sec. A4.2., p. 12.

¹¹⁸ *Id.* Sec. A3.1., p. 7.

¹¹⁹ *Id.* Sec. A2.8, p. 7.

¹²⁰ *Id.*

¹²¹ *Id.*, Sec. A5, p. 15.

¹²² *Id.* Sec. A5.4, p. 16.

¹²³ *Id.* Sec. A5.4, p. 16.

¹²⁴ *Id.* Sec. A5.7., p. 17.

action would lead to increasingly negative impacts on land and reduce the prospect of sustainable development.¹²⁵

5.23. The evidence of the IPCC is clear and unequivocal: climate change is already having major impacts on natural systems, human health, livelihoods, food security, the achievement of SDGs, and human rights.

5.24. As stated by the recent *IPCC SR1.5* and *SRCCCL*, and reported in the *United Nations Special Rapporteur's on the Right to a Healthy Environment's 2019 Safe Climate Report*, at current temperature levels, “humanity is already experiencing the frequency, intensity, and duration of extreme weather events, melting of glaciers and ice sheets, rising sea levels, storm surges, saltwater intrusion, ocean acidification, changes in precipitation, flooding, heatwaves, droughts, wildfires, increased air pollution, desertification, water shortages, the destruction of ecosystems, biodiversity loss, and the spread of waterborne and vector-borne disease.”¹²⁶

5.25. Some experts in the National Inquiry have submitted that the best climate science indicates that, to protect the earth’s systems, the *long-term* increase in the average global surface temperature of the Earth above pre-industrial temperatures must stay below 1°C.¹²⁷

5.26. Peer-reviewed research shows that populations around the world are already experiencing significant and varied impacts from the 1°C warming that has occurred. These impacts constitute harbingers of far more dangerous, irreversible, and uncontrollable changes to come, as climate and biological systems pass critical tipping points.¹²⁸ **As the science indicates, there are no safe levels of warming.**

C. Impacts felt and projected can be attributable to specific human activities

5.27. According to *IPCC AR5*, “the causes of observed changes in the climate system, as well as in any natural or human system impacted by climate, are established following a consistent set of methods. **Detection** addresses the question of whether climate or a natural or human system affected by climate has actually changed in a statistical sense, while

¹²⁵ *Id.* Sec. D3, p. 40.

¹²⁶ UN Human Rights (15 July 2019), *Report of the Special Rapporteur on the Issue of Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment* (hereinafter, “UNSR Safe Climate Report”), p. 25, available at <https://undocs.org/en/A/74/161> (last accessed on 12 September 2019).

¹²⁷ *Joint Summary of the Amicus Curiae*, *supra* note 50, pp. 34-35 (citations omitted).

¹²⁸ *Id.*

attribution evaluates the relative contributions of multiple causal factors to an observed change or event with an assignment of statistical confidence.”¹²⁹

5.28. As explained by *Burger et al.*, **climate change attribution** refers to the area of research that links climate change to anthropogenic drivers, or how human activities are affecting the global climate system. **Impact attribution**, on the other hand, refers to the related but distinct body of research that links climate change to its impacts on the world around us, examining how changes in the global climate system affect other interconnected human and natural systems. Meanwhile, **source attribution** explores the contribution of various emissions sources -- including different sectors, activities, and entities -- and land use changes to climate change.¹³⁰ These types of attribution research look at the mean of the variables rather than the extremes. In contrast, **extreme event attribution** looks at how human-induced changes in the global climate system are affecting the frequency, severity, and other characteristics of extreme events.¹³¹

C.1. Event attribution

5.29. In his *Statement*,¹³² expert witness Dr. Myles Allen, Professor of Geosystem Science in the Environmental Change Institute (School of Geography and the Environment and Department of Physics, University of Oxford) and leader of the ECI Global Climate Research Programme, confirmed that “based on the evidence available from current climate models and our understanding of the underlying theory, the probabilities of many potentially damaging extreme weather events, including heatwaves and short-duration extreme precipitation events, increase predictably with rising global temperatures. Hence, this provides a basis for relating harm associated with extreme weather events with attributable changes in global temperature.”¹³³

5.30. Extreme event attribution also looks at how climate change can fuel tropical cyclones, including typhoons. Climate change has clear drivers for tropical cyclones. As stated by *Burger et al.*: “First, sea surface temperatures have warmed in most places, which -- all things being equal -- allows the most intense storms to strengthen, leading to non-linear increase in storm impacts. Second, a warmer atmosphere can hold more moisture, thus, can lead to heavier rainfall and flooding. Finally, higher sea levels exacerbate coastal flooding and high-water levels during storms.”¹³⁴

¹²⁹ IPCC, 2014: *Climate Change 2014: Synthesis Report*, *supra* note 70.

¹³⁰ Burger, M., *et al.* (05 April 2019), *The Law and Science of Climate Change Attribution* (Forthcoming, Columbia Journal of Environmental Law), pp. 9-10, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3051178, (last accessed on 12 September 2019).

¹³¹ *Ibid.* p. 25.

¹³² See Exhibit “PPPPPPPP” to “PPPPPPPP-2,” *Statement of Myles Allen*, p. 3.

¹³³ *Ibid.*

¹³⁴ Burger, M., *et al.*, *supra* note 130, pp. 37-40.

5.31. Extreme event attribution can assess the increased likelihood of a specific extreme weather event occurring. Attribution studies for cyclones, including typhoons and hurricanes, link additional flooding from rising sea levels to human-induced climate change, as well as how warmer ocean temperatures sustain and intensify a hurricane and assess increases in the precipitation.¹³⁵ Tropical storms have also been the subject of extreme event attribution studies. Studies attempt to determine whether human GHGs have made an extreme event more intense (*i.e.*, caused more rainfall or made temperatures hotter), or more likely to occur (*i.e.*, increased the chance or likelihood of the extreme event).¹³⁶

5.32. The results are expressed probabilistically -- in the same way that risk factors in health are measured -- because, in theory, any extreme event is possible in the counterfactual world. Scientists have, therefore, said that it is not possible to give a simple yes or no answer to the question of whether a particular event was caused by climate change; rather, what can be measured is how global warming made the event more intense, or more likely to occur. **This methodology, however, does not imply that there is no relationship between cause and effect; it simply expresses the relationship in a statistical form.**¹³⁷

5.33. In the case of super typhoon Haiyan, as stated in the *Joint Summary of the Amicus Curiae*:

The ocean heat content (OHC) and sea level in the region had increased a great deal since 1993 and especially since 1998. Consequently, as the typhoon approached the Philippines, it was riding on very high sea surface temperatures (SSTs) with very deep support through the high OHC, and the strong winds and ocean mixing did not cause as much cooling as would normally be experienced, probably helping the storm to maintain its tremendous strength. Moreover, the storm surge was without a doubt exacerbated considerably by the sea levels, which were some 30 cm above 1993 values. **Although natural variability played a major role, there was also a global component through increased OHC from the Earth's energy imbalance.**¹³⁸ (Emphasis supplied)

5.34. As explained by *amicus* expert Dr. Kevin Trenberth, Distinguished Senior Scientist at the National Center for Atmospheric Research, "the changes in extremes have huge impacts on society and on ecosystems and the environment (. . .) In one sense, **the extreme event**

¹³⁵ See Exhibit "EEEEEEEE" to "EEEEEEEE-3," *Statement of Brenda Ekwurzel*, dated 20 September 2018, p. 3.

¹³⁶ See Exhibit "DDDDDD" to "DDDDDD-15," *Statement of Sophie Marjanac*, dated 03 August 2018, pp. 4-5, par. 14, (in-text citations omitted).

¹³⁷ *Ibid.*, pp. 5-6, para. 17 (in-text citations omitted).

¹³⁸ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 38 (in-text citations omitted).

would not have happened without global warming, because otherwise the event would have been well within previous experience,”¹³⁹ and so the cost might be wholly or partially assigned.¹⁴⁰

5.35. A more detailed discussion on the extreme event attribution studies and the source attribution studies are contained in sections (Sections C and D of Part VIII on Arguments and Discussion).

D. Respondent Carbon Majors’ knowledge of climate risks and actions and/or inactions in light of foreseeable climate harms

5.36. As shown above, respondent Carbon Majors contributed a substantial amount to atmospheric GHGs causing anthropogenic climate change. **Critically, the contributions by fossil fuel companies, many of which are respondents herein, were consciously made.** There is evidence that many of the respondent Carbon Majors, and the fossil fuel industry as a whole, knew that: (1) fossil fuels produced CO₂ when burned; (2) fossil fuels products would be burned when used as intended; and (3) if fossil fuel consumption continued, there would be potentially catastrophic changes to the climate and harms to people and ecosystems.

5.37. While the National Inquiry was not able to obtain evidence for each individual respondent’s prior knowledge and action, this section summarizes the documentary evidence now on record of leading companies’ (oil companies in particular) and industry associations’ early knowledge of climate risks and involvement in efforts to undermine climate science and solutions. All of the respondent fossil fuel companies “can be presumed to be aware of climate relevant information being discussed, investigated and communicated on by relevant industry associations and professional associations.”¹⁴¹

5.38. At any rate, petitioners have shown by conclusive evidence that the fossil fuel industry had early awareness, notice, and knowledge of potential and real harms posed by climate change. A number of experts provided documentary and testimonial pieces of evidence on this matter during the course of the National Inquiry.¹⁴²

¹³⁹ Trenberth, K., *Amicus Curiae Declaration*, *supra* note 44.

¹⁴⁰ *Ibid.*

¹⁴¹ Exhibit “GGGGG” to “GGGGG-35,” *Profile and Statement of Carroll Muffett*, dated 20 August 2018, p. 13.

¹⁴² Some of these experts are: Andrew Grant (Carbon Tracker Initiative), Brenda Ekwurzel (Union of Concerned Scientists), Carroll Muffett (Center for International Environmental Law), Dylan Tanner (InfluenceMap), Geoffrey Supran (joint postdoctoral researcher at MIT and Harvard), Henry Shue (Oxford University and Centre for International Studies), Kert Davies (Climate Investigations Center), Lisa Anne Hamilton (Center for International Environmental Law), Mark Campanale (Carbon Tracker Initiative), Paul

5.39. As pointed out by *amicus* and expert witness Mr. Carroll Muffett, President and Chief Executive Officer of the Center for International Environmental Law (CIEL), “[a]t all relevant times, fossil fuel companies can and should be presumed to be experts in all aspects of the products they produced, manufactured, marketed or otherwise put into the stream of commerce.”¹⁴³

5.40. Based on evidence submitted during the course of the National Inquiry, **the fossil fuel industry, including many of the respondent Carbon Majors, had actual knowledge of the harms resulting from the extraction, sale, and use of their fossil fuel products in the 1960s, if not earlier.** The exact date of fossil fuel industry notice, awareness, and knowledge of climate risks will not be settled until all relevant documents and communications are disclosed by the respondent Carbon Majors.

5.41. Respondents’ knowledge of climate risks and subsequent corporate actions and/or inactions, taken in light of the known risks, are set out below based on the evidence given during the National Inquiry. A timeline of the key information in this section is attached hereto and made an integral part of this memorandum as **Annex “A.”**

D.1. The fossil fuel industry should have been aware that fossil fuel combustion could alter the global climate by the early 20th century

5.42. Almost 200 years ago, scientists began researching the “greenhouse effect.”¹⁴⁴ The link between increases in global average temperature and fossil fuel combustion was further studied by Guy Callendar in 1938.¹⁴⁵ From there on, as explained by Mr. Muffett, “the potential for climatic change became a matter of recurring discussion within the scientific and technical literature.”¹⁴⁶

Ekins (UK Energy Research Centre and University College London), Peter Frumhoff (Union of Concerned Scientists), Richard Heede (Climate Accountability Institute), Sharon Eubanks (Former Director at U.S. Department of Justice Litigation Team and Lead Counsel), and Sophie Marjanac (ClientEarth).

¹⁴³ Muffett, C., *supra* note 141, p. 13.

¹⁴⁴ In 1896, Arrhenius published a paper titled “*On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground*” that finally quantified the effect that increased carbon dioxide had on the greenhouse effect. See: Lewis, D. (03 August 2015), *Scientists Have Been Talking About Greenhouse Gases for 191 Years*, Smithsonian Institute, available at <https://www.smithsonianmag.com/smart-news/scientists-talking-about-greenhouse-gases-191-years-180956146/> (last accessed on 12 September 2019)

¹⁴⁵ See Exhibit “VV” to “VV-8,” Callendar, G. (1938), *The Artificial Production of Carbon Dioxide and its Influence on Temperature*.

¹⁴⁶ Muffett, C., *supra* note 141, p. 16.

D.2. In the 1950s and 1960s, the fossil fuel industry was actively engaging in climate science and had actual knowledge of the grave dangers posed to people by climate change arising from the use of their fossil fuel products

1. 1950s

5.43. The fossil fuel industry, coordinated by the American Petroleum Institute (API), were leading researchers on air pollution in the early 1950s.¹⁴⁷ API is the primary fossil fuel industry trade group in the United States, and its membership includes many of the respondent Carbon Majors named¹⁴⁸ herein.

5.44. In 1954, scientists from a prestigious U.S. university, the California Institute of Technology, submitted a research proposal to API, which, as described by Dr. Benjamin Franta, explained that “fossil fuels had caused atmospheric CO₂ concentrations to rise by about 5% over the last 100 years.”¹⁴⁹ The API funded the scientists, and although the work ultimately focused on issues other than climate change, measurements of CO₂ continued for some time.¹⁵⁰ Dr. Franta found that the results on CO₂ were never published.¹⁵¹

5.45. By the late 1950s, documentary evidence indicates that certain fossil fuel companies, independently or through association with trade groups, such as API¹⁵² and the Western States Petroleum Association (WSPA),¹⁵³ may have had “actual knowledge” of the “potential climate risks” associated with their fossil fuel products.¹⁵⁴

5.46. In 1957, Exxon was on notice of these risks, as evidenced by a published paper written by scientists with the Humble Oil and Refining Company’s Production Research Division. Humble Oil was, at the time, a

¹⁴⁷ *Id.* p. 14.

¹⁴⁸ See <https://www.api.org/membership> (last accessed on 12 September 2019).

¹⁴⁹ Franta, B. (2018), *Early oil industry knowledge of CO₂ and global warming*. 8 *Nature Climate Change*, pp. 1024-1025 (this page is based on its appearance in the publication), available at <https://www.nature.com/articles/s41558-018-0349-9>, (last accessed 12 September 2019), Exhibit “BBBBBBBBBB” to “BBBBBBBBBB-1.” See Fig. 1, citing Brown, H., *et al.*, *The Determination of the Variations and Causes of Variations of the Isotopic Composition of Carbon in Nature: A Proposal to the American Petroleum Institute from the Division of Geological Sciences, the California Institute of Technology* (California Institute of Technology, 1954).

¹⁵⁰ *Id.*

¹⁵¹ *Id.*

¹⁵² For more information about API, see: <https://climateenergy.wpengine.com/about/> and <https://www.api.org> (last accessed on 12 September 2019).

¹⁵³ For more information about WSPA, see: <https://www.wspa.org/issue/climate-change/> (last accessed on 12 September 2019).

¹⁵⁴ Muffett, C. *supra* note 141, p. 13, 16.

wholly-owned subsidiary of Esso, now respondent ExxonMobil.¹⁵⁵ The paper identified the link between the burning of fossil fuels and rising carbon dioxide emissions.¹⁵⁶

5.47. In a statement to the United States Department of Health Education and Welfare in 1958, concerning air pollution from transportation, Charles Jones, then Executive Secretary of **API's Smoke & Fumes Committee**,¹⁵⁷ noted that carbon dioxide was an inescapable component of gasoline combustion in automobiles.¹⁵⁸ In the same document, API assured the US government that the industry was committed to controlling pollution emissions not only from the production of its products, but from their use.¹⁵⁹ In present day terminology, these are called scope three (3) emissions, which are all indirect emissions, including upstream and downstream emissions, which occur in a company's value chain.¹⁶⁰

5.48. In a separate report also published in 1958, which summarized the industry's research into air pollution, Charles Jones expressly referenced a project aimed at determining the amounts of atmospheric carbon attributable to fossil fuel combustion.¹⁶¹

5.49. Coupled with API's 1954 investment in research and documentary evidence of climate research by a leading oil company, Humble Oil (now respondent ExxonMobil) in 1957, the Smoke and Fumes documents from 1958 indicate that the whole industry was starting to understand its own role in CO₂ emissions and climate change and was considering its responsibility related to those emissions.

5.50. A 1959 speech to industry leaders by the physicist Edward Teller presented an even starker warning -- and still more explicit notice -- of the

¹⁵⁵ *Id.*, p. 17.

¹⁵⁶ *Id.*, p. 17; See also Exhibit "YY" to "YY-7," Brannon Jr., H. R., *et al.* (1957), *Radiocarbon Evidence on the Dilution of Atmospheric and Oceanic Carbon by Carbon from Fossil Fuels*.

¹⁵⁷ "In 1957-58, when API first acknowledged coordinated research into atmospheric carbon from fossil fuels, the following Carbon Majors companies were API members directly, or through their predecessors, subsidiaries or affiliates: Ashland Oil, British Petroleum, Chevron, Conoco Phillips, ExxonMobil, Petroleos de Venezuela, and Shell Oil. (Submitted for the record as a document annexed to slide 26 of testimony on May 23rd.)," Muffett, C., *supra* note 141, p. 18, citing <http://dupontasbestosdocuments.com/d2/API/11507.pdf> (last accessed on 12 September 2019).

¹⁵⁸ C.A. Jones, Executive Secretary, Smoke and Fumes Committee, American Petroleum Institute, submitted to United States Department of Health Education and Welfare (19 November 1958), *Sources of Air Pollution: Transportation (Petroleum)*, p. 2, available at <https://www.industrydocuments.ucsf.edu/docs/#id=xrcm0047> (last accessed on 12 September 2019).

¹⁵⁹ *Id.* pp. 2-3.

¹⁶⁰ Task Force on Climate-related Financial Disclosures (hereinafter, "TCFD") (2017), *Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures* citing *Greenhouse Gas Protocol*, "Calculation Tools, FAQ," available at <https://www.fsb-tcfd.org/publications/final-recommendations-report/> (last accessed 12 September 2019).

¹⁶¹ Muffett, C., *supra* note 141, p. 18, citing Exhibit "ZZ" to "ZZ-5, Jones, C. A. (1958), *A Review of the Air Pollution Research Program of the Smoke and Fumes Committee of the American Petroleum Institute*, *Journal of the Air Pollution Control Association*, pp. 268-272.

climate risks created by those emissions. At an event marking the 100th anniversary of the oil industry at Columbia University, Mr. Teller said:

It has been calculated that a temperature rise corresponding to a 10 per cent increase in carbon dioxide will be sufficient to melt the icecap and submerge New York. All the coastal cities would be covered [in water] ... I think that this chemical contamination is more serious than most people tend to believe.¹⁶²

5.51. Based on the archival documents he retrieved, Dr. Franta concluded that even before the Keeling Curve (a graph of carbon dioxide concentrations in the atmosphere) was published in the 1960s, **“oil industry leaders were aware that their products were causing CO₂ pollution to accumulate in the planet’s atmosphere in a potentially dangerous fashion.”**¹⁶³

2. 1960s

5.52. Respondent Shell was individually on notice of the role of its fossil fuel products in causing climate change **no later than 1962** -- five decades ago -- with the Chief Consulting Geologist, Marion King Hubbert, producing a lengthy report that Mr. Muffett noted, **“bears striking similarities to global climate models released even many years later.”**¹⁶⁴

5.53. Mr. Hubbert’s report also describes a 1961 presentation by Yale University Professor, Evelyn Hutchinson, that concluded, “[t]here is evidence that the greatly increasing use of the fossil fuels . . . is seriously contaminating the earth’s atmosphere with CO₂.”¹⁶⁵ Mr. Hubbert notes that CO₂ may already be producing “climatic change in the direction of higher average temperatures. This could have profound effects both on the weather and on the ecological balance.”¹⁶⁶ Hubbert also recounts Professor Hutchinson’s urging of “serious consideration of the maximum utilization of solar energy.”¹⁶⁷ **This means that respondent Shell was aware, or should have been aware, of the need to shift to renewable energy five decades ago.**

¹⁶² Franta, B. (01 January 2018), *On its 100th birthday in 1959, Edward Teller Warned the Oil Industry About Global Warming*, The Guardian, available at <https://www.theguardian.com/environment/climate-consensus-97-per-cent/2018/jan/01/on-its-hundredth-birthday-in-1959-edward-teller-warned-the-oil-industry-about-global-warming> (last accessed on 12 September 2019).

¹⁶³ Franta, B., *supra* note 149, p. 1024.

¹⁶⁴ Muffett, C., *supra* note 141, p. 20.

¹⁶⁵ *Id.*, p. 21, Fig. 3.

¹⁶⁶ *Ibid.*

¹⁶⁷ *Ibid.*

5.54. In 1965, U.S. President Lyndon Johnson received a report from the government's own Science Advisory Committee.¹⁶⁸ The report, *"Restoring the Quality of Our Environment,"* was written by the leading climate scientists of the time.¹⁶⁹ **The report warned President Johnson and the public about global warming. The findings were accurate even based on today's scientific consensus, and clearly laid the blame on fossil fuels for causing interference of the climatic system.**¹⁷⁰

5.55. Then President of the API, Frank Ikard, rapidly "relayed the warning" to API's membership,¹⁷¹ explaining that the U.S. President's Science Advisory Committee had predicted that fossil fuels would cause significant warming and non-polluting means of transportation would likely be a "national necessity."¹⁷² **This salient message was buried in archives until last year.**¹⁷³

5.56. Soon after, it appears that the API's public message on climate change became much more skeptical. For example, in 1967, Robert Dunlop, then Chairman of the Board of Directors of the API, testified before the U.S. Congress. Despite API's awareness of rising CO₂ and foreseeable dangerous effects, he stated, "[w]e in the petroleum industry are convinced that by the time a practical electric car can be mass produced and marketed, it will not enjoy any meaningful advantage from an air pollution standpoint. Emissions from internal-combustion engines will have long since been controlled."¹⁷⁴ He went on to urge that federal funds should not be dedicated to "any single possible solution" (e.g., electric cars); instead, he suggested that federal funds should be used "to stimulate all efforts by industry to eliminate automotive pollution."¹⁷⁵

5.57. The aforementioned statement appears to be an early example of the fossil fuel industry's attempt to delay action on solutions. Moreover, while

¹⁶⁸ John F. Kennedy is the first known US President to have been made aware of climate risks; Hulac, B. (06 November 2018), *Every President Since JFK was Warned About Climate Change*. E&E News, available at <https://www.eenews.net/stories/1060105233> (last accessed 12 September 2019).

¹⁶⁹ Rich, N. (01 August 2018), *Losing the Earth: The Decade We Almost Stopped Climate Change*. The New York Times, available at <https://www.nytimes.com/interactive/2018/08/01/magazine/climate-change-losing-earth.html> (last accessed 12 September 2019).

¹⁷⁰ Nuccitelli, D. (05 November 2015), *Scientists Warned the US President About Global Warming 50 years Ago Today*. The Guardian, available at <https://www.theguardian.com/environment/climate-consensus-97-per-cent/2015/nov/05/scientists-warned-the-president-about-global-warming-50-years-ago-today> (last accessed 12 September 2019).

¹⁷¹ Franta, B., *supra* note 149, p. 1024.

¹⁷² Nuccitelli, D. *supra* note 170, p. 161.

¹⁷³ Franta, B., *supra* note 149, p. 1025.

¹⁷⁴ See Exhibit "NNNNN" to "NNNNN-33," *Minutes of the Joint Hearings before the Committee on Commerce and the Subcommittee on Air and Water Pollution of the Committee on Public Works United on, "A Bill to Amend the Clean Air Act in order to Authorize and Investigation and Study to Determine Means of Propelling Vehicles so as not to Contribute to Air Pollution," and "A Bill to Authorize a Program of Research, Development and Demonstration Projects for Electrically Powered Vehicles"* dated 14-17 March and 10 April 1967, p. 319.

¹⁷⁵ *Id.*, p. 319.

discussing a number of sources of pollution from petroleum fuels, Dunlop did not mention CO₂ despite API's awareness of its dangerous effects.

5.58. By 1968, Mr. Muffett testified that, the fossil fuel industry was “warned repeatedly and in increasingly stark terms about the mounting scientific evidence of climate change . . . and the potential for changes to the global environment on an unprecedented and potentially catastrophic scale.”¹⁷⁶ The API hired the Stanford Research Institute, which produced a final report, entitled “*Sources, Abundance, and Fate of Gaseous Atmospheric Pollutants*,”¹⁷⁷ informing API that “[if] the earth’s temperature increases significantly, a number of events might be expected to occur, including the melting of the Antarctic ice cap, a rise in sea levels, warming of the oceans, and an increase in photosynthesis.”¹⁷⁸

5.59. Importantly, the report noted that “[p]ast and present studies of CO₂ are detailed and seem to explain adequately the present state of CO₂ in the atmosphere. What is lacking, however, is an application of these atmospheric CO₂ data to air pollution technology and work toward systems in which CO₂ emissions would be brought under control.”¹⁷⁹

5.60. A year later, with knowledge of the role of emissions from the use of fossil fuels in increasing temperatures, API commissioned a supplemental report to the Stanford Research Institute’s 1968 report. Mr. Muffett explained that there were “striking differences” between the two reports.¹⁸⁰ The 1969 supplemental report, for instance, “**omitted several paragraphs from the 1968 report that summarized the potential environmental and human impacts of climate change.**”¹⁸¹

5.61. In 1969, the following respondents were API members directly, or through their predecessors, subsidiaries, or affiliates: British Petroleum, Chevron, Conoco Phillips, ExxonMobil, Husky Energy, Marathon Oil, Murphy Oil, Shell Oil, Suncor, and Total. It can be assumed that membership in 1968 was similar to the 1969 list.¹⁸² **The Stanford Research Institute’s reports were extensively reviewed by many of the respondents herein, making them privy to the information showing how their companies were exacerbating climate change risks.**¹⁸³

¹⁷⁶ Muffett, C., *supra* note 141, p. 16.

¹⁷⁷ See Exhibit “HHH” to “HHH-13,” Robinson, E., and Robbins, R.C. (1968), *Final Report (Sources, Abundance, and Fate of Gaseous Atmospheric Pollutants)*, prepared for the American Petroleum Institute.

¹⁷⁸ *Id.*, p. 108.

¹⁷⁹ *Id.* p. 112.

¹⁸⁰ Muffett, C., *supra* note 141, p. 23.

¹⁸¹ *Id.*

¹⁸² *Id.*, pp. 23-24, citing <http://dupontasbestosdocuments.com/d2/API/11517.pdf> and <http://dupontasbestosdocuments.com/d2/API/11518.pdf> (last accessed on 12 September 2019).

¹⁸³ *Id.*, p. 24.

5.62. As the fossil fuel industry acquired detailed knowledge of climate risks, carbon pollution dramatically increased. There has been a threefold increase in the rate of CO₂ emissions from fossil fuels and industry since the 1960s,¹⁸⁴ and more than half of all cumulative CO₂ emissions have occurred since 1988.¹⁸⁵

D.3. In the 1970s, the fossil fuel industry began to publicly question the legitimacy of climate science, as a business tactic, while internally their own scientists repeatedly warned of climate risks

5.63. At the start of the 1970s, the fossil fuel industry began to manufacture uncertainty around climate science. For example, in 1972, oil companies submitted a report under the auspices of National Petroleum Council to regulators at the U.S. Department of the Interior, which “dismissed the risks of climate change despite explicitly referencing industry-funded research which provided a greater warning of those risks.”¹⁸⁶

5.64. In addition, the oil industry told regulators there was no reason to act until the year 2000,¹⁸⁷ when in fact they knew more immediate action was necessary.

5.65. Executives continued to be warned about climate risks from their own scientists. For example, in 1977, Exxon’s Corporation Management Committee was briefed by James Black, a scientific advisor for the company’s Product Research Division. Mr. Black explained in 1977 that atmospheric scientists generally attribute increases in CO₂ to the combustion of fossil fuels, and “man has a window of five to ten years before the need for hard decisions regarding energy strategies might become critical.”¹⁸⁸

¹⁸⁴ According to research cited in a lawsuit brought by commercial fishermen association against fossil fuel companies. See: *Pacific Coast Federation of Fishermen’s Association v. Chevron Corp. et al.*, Complaint, Superior Court of the State of California, case number CGC-18-5711285, 14 November 2018, available at http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2018/20181114_docket-CGC-18-571285_complaint.pdf, p. 4, citing C. Le Quéré et al., Global Carbon Budget 2016, *EARTH SYST. SCI. DATA* 8, 630 (2016), available at <https://www.earth-syst-sci-data.net/8/605/2016/essd-8-605-2016.pdf> (last accessed on 12 September 2019). A copy of the case is attached hereto and made an integral part hereof as Annex “B.”

¹⁸⁵ *Id.* p. 4, citing Andres, R.J., et al., *A synthesis of carbon dioxide emissions from fossil-fuel combustion*, *BIOGEOSCIENCES*, 9, 1851 (2012), available at <http://www.biogeosciences.net/9/1845/2012> (last accessed on 12 September 2019).

¹⁸⁶ Muffett, C., *supra* note 141, pp. 30-31.

¹⁸⁷ See Exhibit “JJJ” to “JJJ-215,” *Environmental Conservation (The Oil and Gas Industries / Volume Two)* by National Petroleum Council, dated February 1972, p. 12.

¹⁸⁸ See Exhibit “KKKKK” to “KKKKK-33,” *The Greenhouse Effect; J.F. Black, Products Research Division, Exxon Research and Engineering Co.*, dated 06 June 1978, cover note, p. 2.

5.66. As pointed out in the *Pacific Coast Federation of Fishermen's Association v. Chevron Corp. et al.* (**Annex "B"** hereof), a climate lawsuit against many of the respondents herein, Exxon scientists pushed for additional research generated by scientists working for the fossil fuel industry:

We should determine how Exxon can best participate in all these [atmospheric science research] areas and influence possible legislation on environmental controls. It is important to begin to anticipate the strong intervention of environmental groups and be prepared to respond with reliable and credible data. It behooves [Exxon] to start a very aggressive *defensive program*¹⁸⁹ (Emphasis supplied)

5.67. Exxon executives, and other respondents herein, were presented with this type of research throughout the 1970s, yet it appears that they actively chose to defend their climate polluting business models despite the scientific warnings and recommendations pointing to the need to transition out of fossil fuels.

D.4. By the 1980s, the fossil fuel industry knew there was broad scientific consensus that climate change was real, was caused by fossil fuel consumption, and would have significant impacts on the environment and human rights

5.68. By the 1980s, the fossil fuel industry understood that climate change was real, was caused by the burning of fossil fuels, and "would have significant impacts on the environment and human health."¹⁹⁰ The industry, therefore, had actual knowledge of the potential human rights harms that would result from the use of their products.

5.69. Members of the oil industry were warned again when Dr. John Laurman,¹⁹¹ a consultant hired by API, gave a presentation entitled, "*The CO₂ Problem*" (cited in Annex "B," *Pacific Coast Federation of Fishermen's*

¹⁸⁹ *Pacific Coast Federation of Fishermen's Association v. Chevron Corp. et al.*, *supra* note 184, p. 31. citing Shaw, H. (19 November 1979), *Research in Atmospheric Science [Memo to H. N. Weinberg]*, p.1, available at [https://insideclimatenews.org/sites/default/files/documents/Probable%20Legislation%20Memo%20\(1979\).pdf](https://insideclimatenews.org/sites/default/files/documents/Probable%20Legislation%20Memo%20(1979).pdf) (last accessed on 12 September 2019).

¹⁹⁰ See *Amicus Brief* filed by Robert Brulle, Center for Climate Integrity, Justin Farrell, Benjamin Franta, Stephan Lewandowsky, Naomi Oreskes, and Geoffrey Supran in support of appellees and affirmance, *County of San Mateo v. Chevron Corp.*, p. 14, available at <https://www.sheredling.com/wp-content/uploads/2019/01/Center-for-Climate-Integrity-Amicus.pdf> (last accessed 12 September 2019).

¹⁹¹ Dr. John Laurman appears to have been associated with Stanford University in 1977. Elliot, W., et al. (1979), *Carbon dioxide effects: research and assessment program. Workshop on the global effects of carbon dioxide from fossil fuels*, p. 120, available at <https://www.osti.gov/servlets/purl/6385084> (last accessed on 12 September 2019).

Association v. Chevron Corp. et al.).¹⁹² He explained that there was a “scientific consensus on the potential for large future climatic response to increased CO₂ levels.”¹⁹³ Moreover, he mentioned that there was “strong empirical evidence” that fossil fuel combustion was causing climate change.¹⁹⁴

5.70. Dr. Laurman provided insights on climate modeling, including a foreseeable temperature rise of 2.5°C by 2038 resulting in “major economic consequences” and 5°C rise by 2067 resulting in “globally catastrophic effects.”¹⁹⁵

1. **In the early 1980s, scientists from respondent Exxon recognized the scientific consensus on climate change, warned of potentially catastrophic effects, and highlighted the opportunities to act**

5.71. On 02 September 1982, Roger Cohen, Director of Exxon’s Theoretical and Mathematical Sciences Laboratory, communicated the findings of internal corporate research in climate modeling. Cohen wrote about the “unanimous agreement in the scientific community” regarding the effects of a significant temperature increase, and he noted that the results of their research are “in accord with the scientific consensus on the effect of increased atmospheric CO₂ on climate.”¹⁹⁶ He stated that Exxon had a responsibility to publish its research in scientific literature because to do otherwise would be “a breach of Exxon’s public position and ethical credo on honesty and integrity.”¹⁹⁷

5.72. A month later, on 12 November 1982, an Exxon briefing on “CO₂ ‘Greenhouse Effect’” was widely circulated to Exxon’s management. The briefing clearly communicated that “[m]itigation of the ‘greenhouse effect’ would require major reductions in fossil fuel combustion.”¹⁹⁸ The briefing

¹⁹² See Annex “B” hereof, *Pacific Coast Federation of Fishermen’s Association v. Chevron Corp. et al.*, *supra* note 184, p. 42, citing American Petroleum Institute, AQ-9 Task Force Meeting Minutes (18 March 1980), available at <https://insideclimatenews.org/documents/aq-9-task-force-meeting-1980>, attachment B (last accessed on 12 September 2019). AQ-9 refers to the “CO₂ and Climate” Task Force.

¹⁹³ *Id.*

¹⁹⁴ *Id.*

¹⁹⁵ *Id.*

¹⁹⁶ *Id.*, p. 45, citing Cohen, R. W. (1982), *Memo to A. M. Natkin, Office of Science and Technology, Exxon Corporation*, Linden, N. J., USA., pp. 1-2; available at <http://www.climatefiles.com/exxonmobil/1982-exxon-memo-summarizing-climate-modeling-and-co2-greenhouse-effect-research/> (last accessed 12 September 2019); Also see: Exhibit “MMMMM” to “MMMMM-3.”

¹⁹⁷ *Id.*, p. 45, citing Cohen, R. W. (1982), *Memo to A. M. Natkin, Office of Science and Technology, Exxon Corporation*, Linden, N. J., USA, p. 3, *supra* note 196.

¹⁹⁸ Glaser, M.B., (12 November 1982), Exxon Memo to Management about “CO₂ ‘Greenhouse’ Effect,” Exxon Research and Engineering Co., p. 2, available at

described “the effects of climate on agriculture,” as well as “potentially catastrophic events” including direct impacts, such as the melting of the Antarctic ice cap causing “a rise in sea level on the order of 5 meters”¹⁹⁹ and indirect impacts, such as potentially significant “stress associated with climate related famine or migration.”²⁰⁰

5.73. As the fossil fuel industry acquired sophisticated scientific knowledge of climate change, including the role of fossil fuel products and the dire impacts on people and ecosystems, there were many opportunities for respondents to be part of the solution. But instead of using the scientific knowledge gained over the previous decade to shift the world away from the use of fossil fuels, some of the respondent Carbon Majors carefully presented information to the public so as to protect their social license and maximize profit in a climate-changed world.

2. In 1984, respondent Shell had the ability to measure the company’s contribution to climate change, and for a brief moment in history, it started to inform the public about the deadly and devastating consequences of climate change

5.74. Like respondent ExxonMobil’s internal report in 1982, respondent Shell’s confidential 1988 “Greenhouse Effect” report, unearthed by a Dutch journalist Jelmer Mommers of De Correspondent, shows that the company was well aware of the potential catastrophic impacts and negative social and economic consequences of climate change, including that “[l]arge low-lying areas could be inundated (e.g. Bangladesh),” “shifts in ranges and migration patterns,” and “acidification of seawater.”²⁰¹ The company’s list of potential costly damages from climate change goes on and on, and many of the impacts outlined in that report are already being experienced by Filipinos today.

5.75. Respondent Shell knew that it had a specific responsibility for these impacts. In the same report, the company calculated the CO₂ emissions from oil, gas, and coal sold by the Shell Group of companies -- *i.e.* all Shell entities -- and found that, in 1984, Shell was responsible for 4% of the CO₂ emitted worldwide from fossil fuel combustion.²⁰²

<http://insideclimatenews.org/sites/default/files/documents/1982%20Exxon%20Primer%20on%20CO2%20Greenhouse%20Effect.pdf> (last accessed on 12 September 2019).

¹⁹⁹ *Id.*, pp. 12-13.

²⁰⁰ *Id.*, p. 14.

²⁰¹ See Exhibit “NNN” to “NNN-45, Shell Greenhouse Effect Working Group (1988), *The Greenhouse Effect, Prepared for Shell Environmental Conservation Committee*, pp. 26-28.

²⁰² *Id.*, p. 57.

5.76. Mr. Muffett explained that Shell's calculation of its corporate CO₂ contributions "demonstrated the ability of fossil fuel producers to measure their own impact, it provided implicit support for similar approaches applied in the Carbon Majors analysis nearly 3 decades later."²⁰³

5.77. For a brief moment in history, it appears that respondent Shell decided to inform the public about the deadly and devastating consequences of climate change by distributing a 1991 video entitled, "*Climate of Concern*." The video explained, "[i]t is thought that warmer seas could make destructive [storm] surges more frequent and even more ferocious,"²⁰⁴ a particularly relevant **admission** in the context of this National Inquiry concerning impacts in the Philippines. Reportedly, the video was given to schools and universities.²⁰⁵ The video is no longer available on Shell's website today.

3. In the late 1980s, fossil fuel companies used science to make internal business decisions

5.78. Fossil fuel companies, such as respondents ExxonMobil and Shell, used climate science to make internal business decisions on infrastructure. The Los Angeles Times reported that Ken Croasdale, senior ice researcher for Exxon's Canadian subsidiary (Imperial), was leading a team trying to determine how global warming could affect Exxon's Arctic operations and its "bottom line" and was reporting "its findings to Exxon headquarters in Houston and New Jersey" between 1986 to 1992.²⁰⁶ Ironically, it appears that climate science was used to ensure continued and increased extraction of fossil fuels, rather than as an impetus for companies to transition to renewable sources of energy.

5.79. During this same period, respondent Shell also recognized the operational implications of climate change. According to Mr. Muffett, Shell's internal 1988 *Greenhouse Effect Report* highlighted that "rising sea levels would have 'direct operational consequences' for the company's offshore and coastal facilities, and (implicitly) for others who might be responsible for infrastructure in the same areas."²⁰⁷ The report also discussed the possibility that industry might be compensated for "extra costs incurred" due to operational consequences of sea level rise.²⁰⁸ **It was reported that Shell**

²⁰³ Muffett, C., *supra* note 141, p. 29.

²⁰⁴ Mommers, J. and Carrington, D. (28 February 2017), *If Shell Knew Climate Change was Dire 25 Years Ago, Why Still Business as Usual Today?* De Correspondent, available at <https://thecorrespondent.com/6286/if-shell-knew-climate-change-was-dire-25-years-ago-why-still-business-as-usual-today/692773774-4d15b476> (last accessed 12 September 2019).

²⁰⁵ *Id.*

²⁰⁶ Jerving, S., *et al.* (09 October 2015), *What Exxon Knew About Earth's Melting Arctic*, Los Angeles Times, available at <http://graphics.latimes.com/exxon-arctic/> (last accessed on 12 September 2019).

²⁰⁷ Muffett, C., *supra* note 141, p. 27, citing Shell Greenhouse Effect Report, *supra* note 201, p. 27.

²⁰⁸ Shell Greenhouse Effect Report, *supra* 201, p. 27.

sought to protect one of its assets from climate change in 1989. It raised a North Sea natural gas platform to guard it against sea level rise.²⁰⁹

5.80. Many experts believe that these examples came at a crossroads for the industry, where fossil fuel companies -- including respondents herein -- had the opportunity to disclose the risks based on the recognized scientific consensus. There is ample evidence, however, that some of these companies pivoted from conducting scientific research to denying growing scientific consensus.

4. In blatant disregard of their internal scientific reports, some fossil fuel companies decided to confuse the public on the causes and dangers of climate change, by citing “scientific uncertainty”

5.81. In 1988, respondent ExxonMobil’s spokesperson, Joseph M. Carlson, wrote in a memo that the **“Exxon position” is to “emphasize the uncertainty in scientific conclusions regarding the potential enhanced greenhouse effect.”**²¹⁰

5.82. Like respondent ExxonMobil, respondent Shell also started to walk back from its corporate position that climate change posed severe risks, and instead focused on scientific uncertainty. A 1994 internal Shell report entitled, *“The Enhanced Greenhouse Effect,”* substantially outlined skepticism surrounding the IPCC’s methodology, models, and scientific views.²¹¹ The report also sets out the Shell Group’s position that “[s]cientific uncertainty and the evolution of energy systems indicate that policies to curb greenhouse gas emissions beyond ‘no regrets’ measures could be premature, divert resources from more pressing needs and further distort markets.”²¹²

D.5. Into the 1990s, following the establishment of the IPCC and the start of the global climate negotiations, the fossil fuel industry ran full blown campaigns that manufactured doubt about climate science, concealed the foreseeable

²⁰⁹ Lieberman, A and Rust, S. (31 December 2015), *Big Oil Braced for Global Warming While it Fought Regulations*, available at <http://graphics.latimes.com/oil-operations/> (last accessed on 12 September 2019).

²¹⁰ Carlson, J. M. (03 August 1988), *Exxon Memo on the Greenhouse Effect*, p. 7, available at <http://www.climatefiles.com/exxonmobil/566/> (last accessed on 12 September 2019).

²¹¹ 1994 Shell Report *“The Enhanced Greenhouse Effect – A review of Scientific Aspects,”* p. 9-13, available at <http://www.climatefiles.com/shell/1994-shell-enhanced-greenhouse-effect-review-scientific-aspects/> (last accessed on 12 September 2019).

²¹² *Id.*, p. 14.

human impacts of using fossil fuel products, and delayed meaningful actions

5.83. While the public was waking up to the risks of climate change with the establishment of the IPCC at the end of the 1980s, the fossil fuel industry embarked on a long and massive campaign to manufacture doubt about climate science and solutions.

1. Fossil fuel industry associations, such as the Global Climate Coalition, effectively undermined climate action

5.84. In 1989, forty (40) companies, including respondents BHP Billiton, BP, Chevron, ExxonMobil, and Shell, and industry associations, such as API and the National Association of Manufacturers, created or were members of the Global Climate Coalition (GCC).²¹³ It is important to note that respondents BP and Shell withdrew from the coalition only in the late 1990s.²¹⁴

5.85. The GCC “campaigned actively to oppose climate action at the US and international levels, and to cast doubt on mainstream climate science among consumers, policymakers, and the general public.”²¹⁵ For example, following the publication of the *IPCC Second Assessment Report (IPCC AR2)*, GCC produced a backgrounder with an overview of the coalition’s stance on climate change in 1996. In line with its objective to sow confusion, the overview states:

The GCC believes there is no convincing evidence that future increases in the greenhouse gas concentrations will produce significant climatic effects. Such evidence necessarily must be based on projections produced by climate models. The IPCC Second Assessment Report (SAR) has highlighted a large number of inadequacies in the current climate models which raises serious doubts about the credibility of current climate change scenarios, and therefore the policy-relevance of impact projects to policymakers.²¹⁶

²¹³ Muffett, C., *supra* note 141, p. 15.

²¹⁴ Brown, L. R. (25 July 2000), *The Rise and Fall of the Global Climate Coalition*, Earth Policy Institute, available at www.earth-policy.org/mobile/releases/alert6 (last accessed 12 September 2019). A Shell employee explained that the reason the company left GCC was that they “didn’t want to fall into the same trap as the tobacco companies who have become trapped in all their lies.” Rich, N. (2019), *Losing Earth: A Recent History*, MCD, p. 186.

²¹⁵ Muffett, C., *supra* note 141, p. 15.

²¹⁶ *1996 Global Climate Coalition: An Overview and Attached Reports*, p. 2, available at <http://www.climatefiles.com/denial-groups/global-climate-coalition-collection/1996-global-climate-coalition-overview/> (last accessed on 12 September 2019).

5.86. This statement clearly contravenes a 1995 “final draft” of a GCC primer on global climate science, which stated that the “scientific basis for the Greenhouse Effect and the potential impacts of human emissions of greenhouse gases such as CO₂ on climate is well-established and cannot be denied.”²¹⁷ Based on this primer, it is evident that the members of the GCC had the scientific facts on climate change, yet chose to obscure them in subsequent documents and communications.

2. The fossil fuel industry created front groups that successfully undermined climate action

5.87. Into the 1990s, front groups ran public relations campaigns to undermine climate science and solutions, specifically around the time the United Nations Framework Convention on Climate Change (“UNFCCC”) was opened for signatures.

5.88. In 1991, the Information Council for the Environment (ICE) launched a sophisticated “national climate change science denial campaign with full-page newspaper ads, radio commercials, a public relations tour schedule, ‘mailers,’ and research tools to measure campaign success.”²¹⁸ According to one of the *amici* submitters, the Union of Concerned Scientists (UCS), “[s]everal major fossil fuel companies or their subsidiaries pledged support for ICE,” including respondent Peabody Energy.²¹⁹ ICE was quickly exposed as a front group.²²⁰

5.89. In 1994, oil companies created “Californians Against Utility Company Abuse,” which launched a campaign seeking to block investments in electric vehicle charging stations in California.²²¹ The front group was largely funded and operated by the Western States Petroleum Association (WSPA). Respondents BP, Chevron, ExxonMobil, Shell, and other respondent fossil fuel companies herein have been or are members WSPA.²²²

5.90. The creation of these front groups was one of the many tools the respondents sought to avoid taking responsibility for climate change and

²¹⁷ Global Climate Coalition (21 December 1995), *Primer on Climate Change Science*, Approval Draft, p.1, available at <http://www.climatefiles.com/denial-groups/global-climate-coalition-collection/global-climate-coalition-draft-primer/> (last accessed 12 September 2019).

²¹⁸ Annex “B” hereof; *Pacific Coast Federation of Fishermen’s Association v. Chevron Corp. et al.*, *supra* note 184, p. 54.

²¹⁹ See Exhibit “QQ” to “QQ-28,” Union of Concerned Scientists (2015), *The Climate Deception Dossiers: Internal Fossil Fuel Industry Memos Reveal Decades of Corporate Disinformation*, p. 21.

²²⁰ *Id.*

²²¹ Muffett, C., *supra* note 141, p. 30, citing Michael Parrish, *Trying to Pull the Plug: Big Oil Companies Sponsor Efforts to Curtail Electric, Natural Gas Cars*, Los Angeles Times (14 August 1994), available at http://articles.latimes.com/1994-04-14/business/fi-46003_1_natural-gas-cars (last accessed on 12 September 2019).

²²² Exhibit “QQ” to “QQ-28,” *supra* note 219, p. 13.

actively fought for continued fossil fuel use without directly putting their name on the efforts.

3. At the same time as the disinformation campaigns, the fossil fuel industry took great interest in climate research at universities and funded research efforts

5.91. Expert witness Mr. Kert Davies, Executive Director of Climate Investigations Center, explained that internal documents they uncovered reveal that the Mobil Foundation had provided large sums of money to Columbia University's Lamont-Doherty laboratory.²²³ Further, API and International Petroleum Industry Environmental Conservation Association (IPIECA) were "acting as focal points of petroleum industry effort."²²⁴

5.92. The fossil fuel industry's active involvement in science should have led respondents to seek ways to mitigate and prevent GHG emissions from its products. Instead, respondents continued with their dirty and dangerous business-as-usual stance.

4. In the mid-1990s, as global climate regulations came into force, fossil fuel companies aggressively attacked global action

5.93. In the lead up to the adoption of the *Kyoto Protocol*, Exxon aggressively attacked global action on climate change. In 1996, Lee Raymond, then CEO of Exxon, published "*Climate change: don't ignore the facts*," stating scientific evidence was "inconclusive" on whether humans were contributing to climate change and warning that "multinational effort is based on the unproven theory that they affect the climate."²²⁵

5.94. It is worthy to note that respondents, such as Exxon, intentionally chose to communicate about uncertainties and avoided the inclusion of scientific facts.

²²³ Exhibit "TTTTTT" to "TTTTTT-8," *Statement of Kert Davies*, dated 17 September 2018, p. 3, citing Research, Engineering and Environmental Affairs, Mobil Foundation (July 1993), *1994 Budget Recommendations Mobil Foundation, Inc.*, available at <https://www.documentcloud.org/documents/2814098-1994-Mobil-Budget-Recommendations.html>, (last accessed 12 September 2019).

²²⁴ *Id.*

²²⁵ Exxon Corporation (1996), *Global Warming: Who's Right? Facts about a debate that's turned up more questions than answers*, available at www.climatefiles.com/exxonmobil/global-warming-who-is-right-1996/ (last accessed 12 September 2019).

5.95. That same year, a presentation entitled, “*Purported Impact of Climate Change on Human Health*,” by D.J. Devlin, a scientist from Exxon Biomedical Services, Inc., was “presented or distributed to the Global Climate Coalition.”²²⁶ Mr. Devlin’s presentation noted the “Hypothesis” (the emerging consensus on the health impacts of climate change) is that the risks are high requiring a precautionary approach, meaning that the “**lack of scientific certainty cannot justify postponing preventative action.**”²²⁷ This presentation demonstrates that Exxon had significant knowledge of the health risks posed by climate change and the need for preventive action.²²⁸

5.96. Carrying the tone of misinformation, API published a book entitled “*Reinventing Energy: Making the Right Choices*,” which stated that “there is no persuasive basis for forcing Americans to dramatically change their lifestyles to use less oil.” The main message, on behalf of its oil industry API members, is that “facts do not support the arguments for restraining oil use.”²²⁹

5.97. As the battle to turn public opinion against climate action kicked into high gear, fossil fuel companies continued to assess climate risks internally to maintain profitable operations.

5.98. At a 1998 Mobil Corporation Employee Forum, Lucio Noto, then CEO of Mobil Oil (before its merger with Exxon) gave a speech to employees who were apparently concerned with “what they think is Mobil’s negative attitude on the Kyoto so-called climate agreement.”²³⁰ On one hand, Mobil’s CEO acknowledged the connection between GHGs and climate change. On the other hand, however, he said that “we are also not prepared to admit that the science is a closed fact, and that we should take draconian steps tomorrow to reduce CO₂ gases.”²³¹ Similar to respondent Shell’s 1984 admission that it was responsible for 4% of the CO₂ emitted worldwide from fossil fuel combustion, the Mobil CEO **admitted** that the company had started a GHG inventory, which indicated that 5% of the company’s emissions come from the facilities, while its products count for 95% of the emissions.²³²

²²⁶ Davies K., *supra* note 223, p. 5, citing Devlin, D. J. (1996, September). *Purported Impact of Climate Change on Human Health*. Presented to the Global Climate Coalition; <http://www.climatefiles.com/exxonmobil/1996-purported-impact-climate-change-human-health/>, (last accessed on 12 September 2019).

²²⁷ Emphasis supplied; See: Devlin, D.J. (19 September 1996), *Purported Impact of Climate Change on Human Health*, Exxon Biomedical Sciences, Inc., available at <https://assets.documentcloud.org/documents/3215116/Purported-Impact-of-Climate-Change-on-Human-Health.pdf> (last accessed on 12 September 2019).

²²⁸ Davies, K., *supra* note 223, p. 5-6.

²²⁹ See Annex “B” hereof, *Pacific Coast Federation of Fishermen’s Association v. Chevron Corp. et al*, *supra* note 184, p. 56, citing Gentile, S. B., et al. (1996), *Reinventing Energy: Making the Right Choices*, American Petroleum Institute, p. 77; available at <http://www.climatefiles.com/trade-group/american-petroleum-institute/1996-reinventing-energy/> (last accessed on 12 September 2019).

²³⁰ Noto, L. (1998, February 11), 1998 Mobil CEO Lou Noto Remarks on “*Two-Sided Attitude Toward Climate*,” available at www.climatefiles.com/exxonmobil/mobil-collection/1998-two-sided-climate-stance/ (last accessed on 12 September 2019).

²³¹ *Id.*

²³² *Id.*

5.99. Further in 1998, respondent Shell was assessing its potential liability for its products contributing to climate impacts. The Shell *Internal TINA Group Scenarios 1998-2020 Report* considered the future prospect of oil companies and governments being held liable for climate impacts.²³³

5. The fossil fuel industry's undue influence in international climate politics has resulted in decades of delayed international cooperation, depriving Filipinos of meaningful climate solutions

5.100. Dutch journalist Jelmer Mommers unearthed an internal report following the second Conference of Parties to the UNFCCC. This report was issued by the global oil and gas industry association, the International Petroleum Industry Environmental Conservation Association (IPIECA), showing attendance from many of the respondents herein.²³⁴ According to Mr. Davies, IPIECA was also involved in the *IPCC AR2*. Concerning the *IPCC Informal Workshop on Technology Assessment*, the IPIECA report notes that the global association's "input to IPCC on this issue was evident in the draft" and the then chair of the IPCC, Bob Watson, "acknowledged the IPIECA contribution as a major source."²³⁵

5.101. Just months before the adoption of the *Kyoto Protocol* in December 1997, respondent Exxon's CEO, Lee Raymond, delivered a speech at the World Petroleum Congress in Beijing, China, delivering a strong argument against global action on climate change:

So the case for so called global warming is far from airtight. You would think that all the uncertainty would give political leaders pause...

What should we do? First, let's agree we really don't know about how climate will change in the 21st century and beyond. That means we need to understand the issue better, and fortunately, we have time.²³⁶

5.102. Respondent Exxon had knowledge **two decades earlier** of the risks of climate change and "the need for hard decisions regarding changes to

²³³ 1998 Shell *Internal TINA Group Scenarios 1998-2020 Report*, available at <http://www.climatefiles.com/shell/1998-shell-internal-tina-group-scenarios-1998-2020-report/> (last accessed on 12 September 2019).

²³⁴ Shell International Limited (1996), *IPIECA Report: Framework Convention on Climate Change (FCCC) COP2*, available at www.climatefiles.com/ipcc-unfccc/1996-shell-ipieca-report-cop2/ (last accessed on 12 September 2019).

²³⁵ *Id.*

²³⁶ 1997 Exxon's Lee Raymond Speech at World Petroleum Congress, available at <http://www.climatefiles.com/exxonmobil/1997-exxon-lee-raymond-speech-at-world-petroleum-congress/> (last accessed on 12 September 2019).

energy strategies.²³⁷ Its CEO's speech, casting doubt on climate science, was taken right out of the industry's playbook on how to prevent any regulations that would affect profitability.

5.103. Following Raymond's example, Imperial Oil (Exxon's Canadian subsidiary) CEO, Robert Peterson, claimed in the Summer 1998 Imperial Oil Review ("A Cleaner Canada") that the proposition that the "burning of fossil fuels will result in global climate change" was an "unproven hypothesis."²³⁸

5.104. In order to influence consumers, Mobil (now respondent ExxonMobil) spread this misinformation through paid advertisements, which was intentionally confusing to readers, including their customers. For example, in November 1997, a month before the adoption of the *Kyoto Protocol*, Mobil paid for an advertorial entitled, "*Science: what we know and don't know*," seeking to undermine that consensus on climate change. As Greenpeace USA explains:

Combined with evidence published by reporters showing the degree to which Exxon and Mobil's own scientists understood the global warming phenomenon and its root in human fossil fuel combustion, the advertorials take on new meaning. These oil companies were not as naive or uncertain as they long pretended to be, up until the point that denying the science was no longer possible. It turns out, they knew the entire time, and they appear to have intentionally deceived the public.²³⁹

5.105. The oil industry, as a whole, was also involved in outright disinformation and denial during this crucial period of time. William O'Keefe, then API Executive Vice President and Global Climate Coalition Chairman, wrote in The Washington Post that, "Climate scientists don't say that burning oil, gas, and coal is steadily warming the earth."²⁴⁰

5.106. After the adoption of the *Kyoto Protocol* in 1998, API developed a *Global Climate Science Communications Action Plan*, known as the "Roadmap Memo."²⁴¹ According to Mr. Muffett, "the goal of API's project

²³⁷ See e.g., Exhibit "KKKKK" to "KKKKK-33," *The Greenhouse Effect*; J.F. Black, Products Research Division, Exxon Research and Engineering Co., dated 06 June 1978, cover note, p. 2.

²³⁸ Peterson, R. (1998). *A Cleaner Canada*. Imperial Oil Review Summer 1998, p. 29, available at <http://www.documentcloud.org/documents/2827818-1998-Imperial-Oil-Robert-Peterson-A-Cleaner-Canada.html> (last accessed 12 September 2019).

²³⁹ Gibson, C. (28 August 2017), *How Exxon Used the New York Times to Make You Question Climate Science*, Greenpeace USA, available at <https://www.greenpeace.org/usa/exxon-used-new-york-times-make-question-climate-science/> (last accessed on 12 September 2019).

²⁴⁰ O'Keefe, W. (1997), *A Climate Policy*, The Washington Post, available at https://www.washingtonpost.com/archive/opinions/1997/07/05/a-climate-policy/6a11899a-c020-4d59-a185-b0e7eebf19cc/?hpid=hp_hp-top-table-main-climate-change:oil-warnings%3Ahomepage%2Fstory&hpid=hp_hp-top-table-main-climate-change:oil-warnings%3Ahomepage%2Fstory (last accessed on 12 September 2019).

²⁴¹ Muffett, C., *supra* note 141, p. 32, citing Walker, J. (1998), Draft Global Climate Science Communication Plan; available at www.climatefiles.com/trade-group/american-petroleum-institute/1998-global-climate-science-communications-team-action-plan/ (last accessed on 12 September 2019).

was to ensure a majority of people recognized that ‘significant uncertainties’ exist in climate science, prompting them to raise questions with Congress and others responsible for influencing US progress on climate change.”²⁴²

5.107. API decided that **“Victory Will Be Achieved,”** when among other things, **“[a]verage citizens ‘understand’ uncertainties in climate science,’ and these uncertainties become part of the ‘conventional wisdom’ and supporters of the *Kyoto Protocol* are viewed as “out of touch with reality.”**²⁴³ This reliance on scientific uncertainty, as a weapon to combat meaningful climate action, continued to build among fossil fuel companies as international efforts ramped up to mitigate climate change.

5.108. During this period, the following respondent Carbon Majors were API members directly, or through their predecessors, subsidiaries or affiliates: British Petroleum, Chevron, Conoco Phillips, ExxonMobil, Husky Energy, Marathon Oil, Murphy Oil, Shell Oil, Suncor, and Total.²⁴⁴

5.109. Exxon funded the activities outlined in the *Roadmap Memo* to continuously manufacture and peddle doubt about climate science and action. For example, between 2000 and 2004, Exxon donated \$110,000 to organizations tied with Steve Milloy, a member of Global Climate Science Team, and a known tobacco advocate.²⁴⁵ Previously, Milloy led an organization called the Advancement of Sound Science Coalition that “had been covertly created by the tobacco company, Philip Morris, in 1993 to manufacture uncertainty about the health hazards posed by secondhand smoke.”²⁴⁶ In an article about the links between climate denial and Big Tobacco, U.S. Representative Henry Waxman pointed out that “not only are we seeing the same tactics the tobacco industry used, we’re seeing some of the same groups.”²⁴⁷

²⁴² *Id.*

²⁴³ Emphasis supplied; See: Walker, J. (1998, April 3), *Draft Global Climate Science Communications Plan*, [E-mail to Global Climate Science Team, attaching the Draft Global Science Communications Plan], available at <https://insideclimatenews.org/sites/default/files/documents/Global%20Climate%20Science%20Communications%20Plan%20%281998%29.pdf> (last accessed on 12 September 2019).

²⁴⁴ Muffett, C., *supra* note 141, p. 32.

²⁴⁵ Annex “B” hereof; See: *Pacific Coast Federation of Fishermen’s Association v. Chevron Corp. et al*, *supra* note 184, p. 61-62, citing Union of Concerned Scientists (2007), *Smoke, Mirrors & Hot Air: How ExxonMobil Uses Big Tobacco’s Tactics to Manufacture Uncertainty on Climate Science*. Cambridge, MA, USA, p. 19, available at https://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/exxon_report.pdf (last accessed 12 September 2019).

²⁴⁶ Union of Concerned Scientists (2007), *Smoke, Mirrors & Hot Air: How ExxonMobil Uses Big Tobacco’s Tactics to Manufacture Uncertainty on Climate Science*. Cambridge, MA, USA, p. 10, available at https://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/exxon_report.pdf (last accessed 12 September 2019).

²⁴⁷ *Id.*, p. 19, citing Hertsgaard, M. (2019), *While Washington Slept*, Vanity Fair, available at <https://www.vanityfair.com/news/2006/05/warming200605> (last accessed on 12 September 2019).

5.110. Mr. Davies also pointed to possible funding of the Cooler Heads Coalition (CHC), in what he described as “the longest running climate denial coalition.”²⁴⁸ This was “a coalition of climate denying organizations, funded through the years by respondent ExxonMobil, the Koch Brothers, the Mercers and other ‘dark money,’ who have worked to stall the implementation of effective climate policy since 1997.”²⁴⁹

D.6. From the *Kyoto Protocol* in 2005 to the *Paris Agreement* in 2015, the corporate attack on climate science and solutions unabatedly continued

5.111. A 2006 documentary, *Who Killed the Electric Car*, investigated the efforts of oil companies to limit the development and marketing of electric vehicle technologies. The documentary told the story of new and promising technology for large Nickel Metal Hydride (NiMH) batteries for use in vehicles that was bought by General Motors and, then, respondent Chevron.²⁵⁰

5.112. Mr. Muffett explained that the documentary exposed that “Chevron’s arrangement gave the oil company exclusive control of the licensing and use of the NiMH battery patent and alleged that Chevron was using patent entanglement to prevent the further development or use of the technology.”²⁵¹

5.113. Meanwhile, in his *Statement*,²⁵² Mr. Davies discussed how the Committee For A Constructive Tomorrow (CFACT) spread misinformation following super typhoon Haiyan.²⁵³

5.113.1. CFACT articulated in a blog that—

Typhoon activity in the Philippines is normal. Despite over-the-top reporting before the typhoon struck (timed perfectly for COP 19) Typhoon Haiyan/Yolanda was not the strongest typhoon recorded in the Philippines. It was the seventh. . . .

There are no worthwhile science or historical records which support the notion that extreme storms have worsened in the Philippines or elsewhere as a result of a warming planet.²⁵⁴

²⁴⁸ Davies, K., *supra* note 223, p. 7.

²⁴⁹ *Id.*

²⁵⁰ Muffett, C., *supra* note 141, p. 30.

²⁵¹ *Ibid.*

²⁵² Davies, K., *supra* note 223, p. 7.

²⁵³ *Id.*, pp. 8-9.

²⁵⁴ CFACT Ed. (16 November 2013), *COP 19: Filipino negotiator goes on hunger strike over typhoon*, available at <https://www.cfact.org/2013/11/16/cop-19-filipino-negotiator-goes-on-hunger-strike-over-typhoon/>, (last accessed 12 September 2019).

5.113.2. Contrary to CFACT's statement, "Haiyan generated the strongest winds among a collection of over 400 past storms, which was 16% greater than the second strongest typhoon on record (Typhoon Zeb in 1998). The forward speed of Haiyan was nearly twice as fast as the average speed of these weather systems and could be the fastest typhoon on record. Thus, Haiyan can be characterized as both the fastest moving and strongest typhoon measured in the area."²⁵⁵

5.113.3. To recall, in 2013, Mr. Naderev "Yeb" Saño, one of the petitioners and then Commissioner of the Climate Change Commission, went on a hunger strike during COP 19, and delivered a compelling statement to the parties about the deadly and devastating super typhoon Haiyan and the threat posed by climate-fueled extreme weather events.

5.114. The oil industry continues to obstruct climate policy through deceptive and/or misleading public relations campaigns. In 2014, the Union of Concerned Scientists (UCS) uncovered how Western States Petroleum Association (WSPA) created at least sixteen (16) fake grassroots organizations and campaigns to create the illusion of widespread public opposition to climate and energy measures in western states in the U.S.²⁵⁶ As Mr. Muffett explained, "[WSPA] is the oldest oil industry association in the United States and . . . remains active in efforts to obstruct climate policies, including through deceptive or misleading public relations campaigns."²⁵⁷

5.115. Moreover, according to Mr. Muffett, respondents ExxonMobil, Chevron, BP, ConocoPhillips, and Shell, among other Carbon Majors and/or respondents herein, "have been active in WSPA throughout their century long history, including in 2014."²⁵⁸

5.116. In 2015, Greenpeace USA exposed over a million dollars that the fossil fuel industry invested in a scientist, Dr. Willie Soon. The *Statement*²⁵⁹ of Mr. Davies provides evidence that "Dr. Willie Soon received over \$1.2 Million dollars from fossil fuel interests between 2001 and 2015," from API,

²⁵⁵ Takagi, H. and Esteban, M. (2015), *Statistics of tropical cyclone landfalls in the Philippines: unusual characteristics of 2013 Typhoon Haiyan* (Natural Hazards, 2015, Volume 80, Number 1, p. 211), also available at <https://link.springer.com/article/10.1007/s11069-015-1965-6> (last accessed on 12 September 2019); Also see GMA News Online (08 November 2013), *Super Typhoon Yolanda is strongest storm ever to make landfall in recorded history*, available at <https://www.gmanetwork.com/news/scitech/science/334571/super-typhoon-yolanda-is-strongest-storm-ever-to-make-landfall-in-recorded-history/story/> (last accessed on 12 September 2019).

²⁵⁶ Union of Concerned Scientists, *The Climate Deception Dossiers* (2015), *supra* note 219, p. 13, Exhibit "QQ" to "QQ-28." For complete original document, see: Western States Petroleum Association (2014), *WSPA Priority Issues*, p. 13, available at <https://www.documentcloud.org/documents/3472843-Climate-Deception-Dossier-WSPA-Chart.html#document/p1> (last accessed on 12 September 2019).

²⁵⁷ Muffett, C., *supra* note 141, p. 14.

²⁵⁸ *Ibid.*

²⁵⁹ Davies, K., *supra* note 223, p. 8.

the Charles Koch Foundation, ExxonMobil, and the Southern Company. The investigation revealed that Dr. Soon was “giving back to the corporations” by “neglecting to report this financial support to the scientific journals.”²⁶⁰ Dr. Soon has been documented as “prominent climate change skeptic.”²⁶¹

5.117. A recent Harvard study by Geoffrey Supran and Naomi Oreskes analyzed respondent ExxonMobil’s internal papers, public statements, and campaigns between 1977 and 2014. It showed that the company misled the public about what it knew about the risk of climate change. Expert witness Dr. Geoffrey Supran of Harvard University and the Massachusetts Institute of Technology explained in his *Statement*²⁶² and testimony before the Honorable Commission that their peer-reviewed study²⁶³ concluded that **respondent ExxonMobil emphasized doubts about the scientific evidence that blamed fossil fuel burning for global warming when communicating with the public, but acknowledged, at the same time, those scientific facts in its internal communications.** Dr. Supran explained that:

. . . available documents show a systematic, quantifiable discrepancy between what ExxonMobil’s scientists and executives discussed about climate change in private and in academic circles, and what it presented to the general public.²⁶⁴

5.118. As demonstrated by overwhelming evidence presented during the National Inquiry, some of the respondent Carbon Majors contributed to, and acknowledged, climate science in private and in academic journals read only by a small number of academics. However, they created confusion and doubt about science and solutions in advertisements and other communications read by millions of consumers and key decision-makers.

D.7. Even now, following the adoption of the *Paris Agreement* in 2015 and the *IPCC’s 1.5°C Report* in 2018, respondent Carbon Majors’ actions continue to demonstrate intent to put profit over people and planet

5.119. In 2015, the nations of the world adopted the landmark *Paris Agreement*. It brings almost all nations into a common goal to undertake

²⁶⁰ *Ibid.*

²⁶¹ DeSmog, *Willie Soon*, available at <https://www.desmogblog.com/willie-soon> (last accessed on 12 September 2019).

²⁶² See Exhibit “DDDDD” to “DDDDD-22,” *Profile and Statement of Geoffrey Supran, PhD*, dated 02 August 2018.

²⁶³ See Exhibit “J,” Supran, G. and Oreskes, N. (23 August 2017), *Assessing ExxonMobil’s Climate Change Communications (1977–2014)*.

²⁶⁴ Supran, G., *supra* note 262.

ambitious efforts to combat and adapt to climate change, with the goal of keeping temperature rise to well-below 2°C, with aim of limiting it to 1.5°C.

5.120. Expert witness Dr. Paul Ekins,²⁶⁵ Professor of Resources and Environmental Policy and Director of the Institute for Sustainable Resources at University College London, presented a paper²⁶⁶ where he found that the *Paris Agreement*'s revised temperature targets of keeping temperature rise to "well-below 2°C" and aiming for 1.5°C will "require considerably more fossil fuels to remain unburned than has been estimated."²⁶⁷

5.121. Adding to Dr. Ekin's testimony, expert witnesses Mr. Mark Campanale and Mr. Andrew Grant of Carbon Tracker testified on their groundbreaking financial analysis, referred to as the "*Carbon Bubble*."

5.122. Carbon Tracker's analysis pointed to the following: **respondent BP is projecting a 24% increase in oil use by 2035; respondent ExxonMobil expects a 27% increase by 2040; and respondent Shell's "Current Outlook" of 2016 forecasts an increase of 37% to 2040; and Organization of Petroleum Exporting Countries (OPEC) proposes a 54% increase to 2040.**²⁶⁸ Fossil fuel companies, such as respondents ExxonMobil, BP, and Shell, have largely ignored the looming financial risk.²⁶⁹

5.123. A recent study by InfluenceMap (**Annex "C"** hereof) found that **respondents ExxonMobil, Shell, Chevron, BP, and Total "have invested over \$1 Billion of shareholder funds in the three years following the *Paris Agreement* on misleading climate-related branding and lobbying."**²⁷⁰ Further, InfluenceMap stated that "[t]hese efforts are overwhelmingly in conflict with the goals of this landmark global climate accord."²⁷¹

5.124. Respondents Shell, Total, and Chevron challenged the InfluenceMap study's findings,²⁷² yet their responses, as reported, did not provide any proof that corporate spending on lobbying and branding actually support global efforts to limit warming in line with the *Paris Agreement*.

²⁶⁵ See Exhibit "SSSSSSSS" to "SSSSSSSS-1," *Statement of Paul Ekins*, dated 28 October 2018.

²⁶⁶ See Exhibit "VVVVVVVVV" to "VVVVVVVVV-15," McGlade, C. and Ekins, P. (08 January 2015), *The Geographical Distribution of Fossil Fuels Unused When Limiting Global Warming to 2°C*.

²⁶⁷ Ekins, P., *supra* note 265.

²⁶⁸ *Id.* p. 8.

²⁶⁹ *Id.*, p. 2.

²⁷⁰ **Annex "C"** hereof; InfluenceMap (March 2019), *Big Oil's Real Agenda on Climate Change: An InfluenceMap Report*, also available at <https://influencemap.org/report/How-Big-Oil-Continues-to-Oppose-the-Paris-Agreement-38212275958aa21196dae3b76220bddc> (last accessed on 12 September 2019).

²⁷¹ *Id.*

²⁷² Hill, J. S. (01 April 2019), *Big Oil Invested More Than \$1 Billion On Misleading Climate Lobbying Since Paris*, CleanTechnica, available at <https://cleantechnica.com/2019/04/01/claims-big-oil-invested-over-1-billion-on-misleading-climate-lobbying-since-paris-labelled-fanciful/> (last accessed on 12 September 2019).

D.8. Respondent Carbon Majors' purported commitments to human rights and climate change are inconsistent with their business models

5.125. Since petitioners' submission of their *Petition*, *Amended Petition*, and *Consolidated Reply*, along with other documentary exhibits, with the Honorable Commission, several respondents have included in their published human rights and climate change commitments more details on strategies purporting to support the *Paris Agreement* goal of keeping global temperature increase to well-below 2°C. However, the information in the majority of the respondents' publications do not still outline plans and actions that the petitioners -- in line with the views of climate science and human rights experts -- envision as adequate to address the social, economic, and human rights implications of climate change.

A copy of a summary of respondents' corporate statements on climate change and human rights and their commitments, scores, and grades are attached hereto and made integral parts hereof as **Annexes "D" and "E,"** respectively.

5.126. The summary of corporate statements on climate change and human rights includes powerful data. Eight (8) respondent Carbon Majors signed up to the *Paris Pledge for Action*, demonstrating support for "meeting or exceeding" the goal of limiting temperature rise to less than 2°C.²⁷³ Eighteen (18) respondent Carbon Majors²⁷⁴ are listed as UN Global Compact participants, acknowledging the responsibilities of business to support and respect human rights, including the rights of workers, and to protect the environment by taking a "precautionary approach to environmental challenges," among other matters.²⁷⁵

5.127. The table of commitments, scores, and grades also provides snapshots from useful tools -- developed by UCS, CDP, and InfluenceMap -- that evaluate the performance, or lack of performance in this case, of many of the respondent Carbon Majors on matters relating to climate change.²⁷⁶ **None of the respondent Carbon Majors are doing anywhere near enough to address the climate crisis Filipinos are facing today.**

²⁷³ Anglo American, BHB Billiton, Cemex, Eni, LafargeHolcim, Repsol, Rio Tinto, and Total are listed as non-party stakeholders who joined the Paris Pledge for Action. See **Annex "D"** hereof.

²⁷⁴ Anglo American, BHB Billiton, BP, Cemex, Eni, Glencore, Heidelberg Cement, Hess, Lukoil, OMV, Repsol, Rio Tinto, Rosneft, Royal Dutch Shell, RWE, Sasol, Suncor, and Total are listed as UN Global Compact participants. See **Annex "D"** hereof.

²⁷⁵ *The Ten Principles of the UN Global Compact*, available at <https://www.unglobalcompact.org/what-is-gc/mission/principles> (last accessed on 12 September 2019).

²⁷⁶ See **Annex "E"** hereof.

5.128. Based on petitioners' expert submissions summarized in Annexes "D" and "E," there is no evidence that respondent Carbon Majors have adequately and transparently taken the following actions to-date:

- a) Align their business models to a global average temperature level that avoids or minimizes dangerous anthropogenic interference with the climate system as evidenced by the best available science and, at the very minimum, with the politically agreed 1.5°C temperature goal in the *Paris Agreement* and a carbon budget that provides the greatest possibility of keeping warming below 1.5°C;
- b) Take responsibility for the actual, real emissions from its products and operations, and not the company's "net carbon footprint";²⁷⁷
- c) Adequately acknowledge the impacts of climate change on the exercise of human rights since they first became aware of the potential climate risks and into the future;²⁷⁸
- d) Renounce disinformation on climate science and policy;²⁷⁹
- e) Include climate change as a human rights matter in human rights due diligence;²⁸⁰
- f) Identify and assess the specific human rights impacts of climate change arising from their operations and products, drawing on human rights expertise, and involving meaningful consultation with potentially affected groups and other relevant stakeholders in the Philippines;²⁸¹ and
- g) Track the effectiveness of their response by fully reporting on their total GHGs (including across the full life-cycle of their products), as well as proposed actions to mitigate their emissions into the future (including appropriate emissions reduction targets and investments into renewable energy).²⁸²

²⁷⁷ See e.g. Muttitt, G. (20 May 2019), *Shell's Emissions Still Going Up Despite Accounting Device*, available at <http://priceofoil.org/2019/05/20/shell-emissions-still-going-up-despite-accounting-trick/> (last accessed on 12 September 2019).

²⁷⁸ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 64.

²⁷⁹ Union of Concerned Scientists, *The Climate Deception Dossiers* (2018), *supra* note 219.

²⁸⁰ *Ibid.*

²⁸¹ *Id.* pp. 64-65.

²⁸² *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 65.

5.129. Thus, petitioners humbly submit that the respondent Carbon Majors must be held accountable for their ‘doublespeak’ on climate change. Petitioners demand an end to any deliberate obfuscation of causes, harms, and solutions to climate change.

VI BRIEF STATEMENT OF PETITIONERS’ POSITION

A. Climate science

6.1. The respondent Carbon Majors, together and individually, have extracted, marketed, and sold a substantial percentage of the fossil fuels burned globally, releasing an immense amount of carbon pollution into the Earth’s atmosphere, which is currently interfering with the climatic system.²⁸³

6.2. There is a clear link between respondent Carbon Majors’ climate pollution and global impacts, such as surface temperature and sea-level rise, which in turn is resulting in climate damage in the Philippines²⁸⁴ and human rights harms to Filipinos.

6.3. As mentioned, a recent study indicates that the carbon dioxide and methane emissions linked to 50 investor-owned Carbon Majors, including all 47²⁸⁵ respondents notified in the *Consolidated Reply*, contributed to roughly 16% of the global average temperature increase from 1880 to 2010, and around 11% of the global sea-level rise during the same time frame; and from 1980 to 2010, a time period when fossil fuel companies were acutely aware that their products were causing global warming, these same companies contributed approximately 10% of the global average temperature increase and about 4% sea-level rise.²⁸⁶

²⁸³ See Exhibit “VVVV” to “VVVV-14,” *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers*; Exhibit “H,” Ekwurzel, B., et al (23 April 2017), *The Rise in Global Atmospheric CO₂, Surface Temperature, and Sea Level from Emissions Traced to Major Carbon Producers*; Opinion and Order, United States District Court for the District of Rhode Island, 22 July 2019, in *State of Rhode Island v. Chevron Corp.*, *supra* note 26 (citing to complaint par. 7, 12, 19, 97).

²⁸⁴ See Exhibit “RRRRRRRR” to “RRRRRRRR-12,” *Printed PowerPoint Presentation of Myles Allen, entitled “Attributing Harm to Greenhouse Gas Emissions: Principles and Current Status,”* Exhibit “GGGGGGG” to “GGGGGGG-20,” *Printed PowerPoint Presentation of Brenda Ekwurzel, entitled “Presentation for the Republic of the Philippines Commission on Human Rights National Inquiry on Climate Change.”*

²⁸⁵ Currently 42 in number, see explanation in *supra* note 17.

²⁸⁶ These are the contributions of their emissions between 1980-2010 as a percentage of the overall temperature and sea level rises from 1880-2010. See Exhibit “H,” Ekwurzel, B., et. al. (23 April 2017), *The Rise in Global Atmospheric CO₂, Surface Temperature, and Sea Level from Emissions Traced to Major Carbon Producers*.

B. The human rights harms being suffered by the petitioners and the Filipinos

6.4. Climate change is already resulting in impacts, impairments, infringements, abuses, and/or violations of human rights across the Philippines. In the *Joint Summary of the Amicus Curiae* dated 19 March 2018, leading experts gave evidence to support this clear conclusion:

As the impacts of Typhoon Haiyan prove all too clearly, climate change is already resulting in adverse impacts to human lives and impairments of human rights across the Philippines. Through rising sea levels, changing hydrologic regimes and weather patterns, promotion of disease vectors, exacerbation of extreme weather events, and other climate impacts have caused and will continue to cause loss of life, injuries, property destruction, and human displacement, while also causing other gradual forms of environmental degradation that undermine and will continue to undermine access to clean water, food, education and other key resources. All of these climate impacts impair fundamental rights including the rights to life, health, clean water and sanitation, food, adequate housing, self-determination and development, and equality and non-discrimination. These effects will fall disproportionately on populations who are disadvantaged due to poverty, gender, age, disability, cultural, or ethnic background, and children and future generations who will experience increasingly severe impacts over time.²⁸⁷

C. Respondent Carbon Majors' knowledge of foreseeable climate risks and harms to people

6.5. Filipinos are dealing with a human rights crisis that the fossil fuel industry could have prevented. Many of the respondent Carbon Majors have understood the significant risks posed to people by climate change and the role of fossil fuels in causing the problem for **at least five decades**.²⁸⁸

²⁸⁷ Center for International Environmental Law, ClientEarth, Asia Pacific Forum of National Human Rights Institutions & Global Alliance of National Human Rights Institutions, Environmental Law Alliance Worldwide, Dr. James E. Hansen, Our Children's Trust, Maastricht Principles Drafting Group (Olivier De Schutter, Asbjørn Eide, Ashfaq Khalfan, Rolf Künemann, Jernej Letnar Čerňič, Marcos A. Orellana, Ian Seiderman, Bret Thiele), Sabin Center for Climate Change Law, Columbia Law School, Dr. Kevin Trenberth, *Cover Letter to Joint Summary of the Amicus Curiae Briefs*, 19 March 2018 (hereinafter, "Cover Letter to Joint Summary of the Amicus Curiae Briefs"), also available at <https://www.ciel.org/wp-content/uploads/2018/03/Cover-Letter-to-Joint-Summary-with-signatures-and-logos-final.pdf> (last accessed on 12 September 2019).

²⁸⁸ Muffett, C., *supra* note 141, p. 13; Exhibit "BBBBBBBBBB" to "BBBBBBBBBB-1," Franta, B. (2018), *supra* note 149, p. 1024.

6.6. By the 1980s, the entire fossil fuel industry knew there was a scientific consensus that climate change was real, caused by the use of their fossil fuel products, and would have significant impacts on the environment and human rights. However, instead of acting on this information to reverse or limit the harmful impacts of their operations, there is evidence that certain companies used the information to support and maintain their harmful business model.²⁸⁹ With the establishment of the IPCC and the start of the global climate negotiations in the 1990s, the fossil fuel industry ran full blown campaigns to manufacture doubt about climate science with the aim of delaying meaningful action.²⁹⁰

6.7. The respondents' actions continue to demonstrate an intent to put profit over human rights, even today, despite the *Paris Agreement* entering into force and the *IPCC's Special Reports* in 2018 and 2019. The respondents continued to invest in fossil fuel products, despite the clear scientific grounds supporting a rapid phase-out to avoid the worst impacts of climate change.²⁹¹ This is a **new form of climate denial**, where fossil fuel companies bet on humanity failing to achieve global and national climate commitments.

6.8. While a few of the respondents responded to the *Petition* with lofty statements about their efforts to address climate change, they have thus far refused to engage in a dialogue with the petitioners about the real climate harms being suffered by the Filipino people.²⁹² Not one of the respondents submitted evidence or testified after the National Inquiry commenced, despite the Honorable Commission's accommodating measures (*i.e.*, conveniently holding inquiry hearings and consultations in countries where respondents are headquartered). The respondents' disregard of the National Inquiry is yet another example of companies' failure to fulfill their responsibility to act with due diligence and respect and protect human rights.

²⁸⁹ Muffett, C., *supra* note 141, p. 13, 32; Jerving, S., et al. (09 October 2015), *What Exxon Knew About Earth's Melting Arctic*, Los Angeles Times, available at <http://graphics.latimes.com/exxon-arctic/> (last accessed on 12 September 2019); Carlson, J. M. (03 August 1988), *Exxon Memo on the Greenhouse Effect*, p. 7, available at <http://www.climatefiles.com/exxonmobil/566/> (last accessed 12 September 2019).

²⁹⁰ Davies, K., *supra* note 223, pp. 3-9; See Exhibit "J," Supran, G. and Oreskes, N. (23 August 2017), *Assessing ExxonMobil's Climate Change Communications (1977–2014)*.

²⁹¹ See Exhibit "VVVVVVVV" to "VVVVVVVV-15," McGlade, C. and Ekins, P. (08 January 2015), *The Geographical Distribution of Fossil Fuels Unused When Limiting Global Warming to 2°C*; See Exhibit "WWWWWWW" to "WWWWWWW-14," *Statement of Resource Persons, Mark Campanale and Andrew Grant* dated 28 October 2018; Muttitt, G. (16 January 2019), *Assessing Shell's Climate Plans*. Oil Change International, available at <https://storage.googleapis.com/planet4-philippines-stateless/2016/07/e9ff61fa-shell-climate-gm-philippines-chr.pdf> (last accessed on 12 September 2019); Hill, J. S. (01 April 2019), *Big Oil Invested More Than \$1 Billion On Misleading Climate Lobbying Since Paris*, CleanTechnica, available at <https://cleantechnica.com/2019/04/01/claims-big-oil-invested-over-1-billion-on-misleading-climate-lobbying-since-paris-labelled-fanciful/> (last accessed on 12 September 2019).

²⁹² Petitioners' *Consolidated Reply*, also available at https://secured-static.greenpeace.org/seasia/ph/PageFiles/735291/Human_Rights_and_Climate_Change_Consolidated_Reply_2_10_17.pdf?_ga=2.190604203.1262065206.1567606580-1204342681.1567606580 (last accessed on 12 September 2019).

D. Respondent Carbon Majors' responsibility to respect and protect human rights under international law and agreements

6.9. Respondent Carbon Majors are acting unlawfully. They have a legal responsibility to respect, including through proactive measures,²⁹³ and protect²⁹⁴ the human rights of the Filipino people, as described in the *United Nations Guiding Principles on Business and Human Rights* (“UNGPs”) and international jurisprudence. The UNGPs should be interpreted in accordance with international environmental law and the international law governing climate change, including the precautionary principle and polluter pays principles,²⁹⁵ and with national laws and doctrines, like the *Oposa Doctrine* of “intergenerational responsibility.”²⁹⁶

6.10. Under the UNGPs, business enterprises are required to commit at the highest level to respect human rights, undertake human rights due diligence to identify and avoid potential adverse impacts, and provide remedy in the event of adverse harm.

6.11. More specifically for the respondent Carbon Majors, the responsibility to respect and protect human rights entails an obligation on the part of the respondents not to contribute to human rights impairments, infringements, abuses, and/or violations arising from climate change; as well as prevent, mitigate, and accept responsibility for the adverse human rights impacts linked to their activities, as directed by the *Interpretive Guidance* of the UNGPs.

6.12. As explained in the *Joint Summary of the Amicus Curiae*, “[t]he *Interpretive Guidance*²⁹⁷ confirms that an enterprise can contribute to an adverse human rights impact through the legal sale of its products. The evidence demonstrates that the respondents have, through their operations and products, caused the emissions of GHGs in such significant quantities as to

²⁹³ Cover Letter to Joint Summary of the Amicus Curiae Briefs, *supra* note 287.

²⁹⁴ *Id.*, citing *Kaliña and Lokono Peoples v. Suriname*, Inter-Am. Ct. H. R., Judgment (Merits, Reparations, and Costs), para. 224 (25 November 2015), available at http://www.corteidh.or.cr/docs/casos/articulos/seriec_309_ing.pdf (last accessed on 12 September 2019); *Urbaser S.A. & Consorcio de Aguas Bilbao Bizkaia, Bilbao Biskaia Ur Partzuergoa v. The Argentine Republic*, ICSID Case No. ARB/07/26, Award, para. 1999 (08 December 2016); Case against New TV S.A.L. and Karma Mohamed Tahsin al Khayat, STL-14-05/PT/AP/ARI26.1, Decision on Interlocutory Appeal Concerning Personal Jurisdiction in Contempt Proceedings, Special Tribunal for Lebanon, para. 46 (02 October 2014).

²⁹⁵ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 65.

²⁹⁶ e.g. *Oposa, et al. v. Factoran, Jr. et al.*, G.R. No. 101083, 30 July 1993, also available at https://www.lawphil.net/judjuris/juri1993/jul1993/gr_101083_1993.html (last accessed on 12 September 2019).

²⁹⁷ Italics and emphasis supplied

have contributed to climate change, to impose on them specific and particular obligations in respect of the human rights impacts of climate change.”²⁹⁸

6.13. References to the respondents in the *Petition, Consolidated Reply*, and this memorandum “should be taken as a reference to the parent entity or entities in whose name the accounts of the group are consolidated in accordance with the rules of the jurisdiction in which the parent is incorporated or listed for trading on a stock exchange. This is the intent of the petitioners’ pleadings, and as supported by the UNGPs, apply to “all business enterprises, both transnational and others, regardless of their size, sector, location, ownership and structure.”²⁹⁹

6.14. For purposes of issuing a final report and/or resolution concerning this National Inquiry, the Honorable Commission can “adopt an enterprise theory of corporate personhood[;] meaning[,] that the activities of the whole group of companies (and specifically the greenhouse gas emissions attributable to the group as a whole) should be aggregated and attributed to the parent entity.”³⁰⁰

E. Respondents’ moral and legal responsibility under general principles of tort and human rights law

6.15. Finally, under fundamental principles of responsibility that are common to judicial systems around the world, respondents can ultimately be held legally responsible for the harms being suffered by communities. The fossil fuel companies had early awareness, notice, and actual knowledge of the role of coal, oil, and gas products in causing climate change and the reasonably foreseeable human rights harms resulting from climate impacts.

6.16. Significantly, fossil fuel companies had the opportunity to avoid or reduce those harms. However, their past and current activities -- including the extraction, marketing, and sale of fossil fuels -- and past and current efforts to undermine climate science and solutions have contributed and continue to materially contribute to the climate damage resulting in human rights harms³⁰¹ to petitioners and Filipinos, in general.

²⁹⁸ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 62.

²⁹⁹ *Ibid.*

³⁰⁰ *Ibid.*

³⁰¹ *Ibid.*

**VII
ISSUES**

A

**WHETHER CLIMATE CHANGE
IS IMPACTING THE
PHILIPPINES.**

B

**WHETHER CLIMATE CHANGE
RESULTS IN -- AND/OR
THREATENS -- THE
IMPAIRMENT, INFRINGEMENT,
ABUSE, AND/OR VIOLATION OF
THE HUMAN RIGHTS OF THE
FILIPINOS.**

C

**WHETHER RESPONDENT
CARBON MAJORS
SIGNIFICANTLY CONTRIBUTE
TO CLIMATE CHANGE.**

D

**WHETHER RESPONDENT
CARBON MAJORS' ACTIONS
AND/OR INACTIONS ARE
LINKED TO THE CLIMATE
CHANGE IMPACTS OCCURRING
AND/OR THREATENING TO
OCCUR IN THE PHILIPPINES.**

E

**WHETHER RESPONDENT
CARBON MAJORS ARE
RESPONSIBLE, UNDER
INTERNATIONAL LAWS AND
AGREEMENTS AND DOMESTIC
LAWS TO RESPECT AND
PROTECT THE HUMAN RIGHTS**

OF FILIPINOS IN THE CONTEXT OF CLIMATE CHANGE.

VIII ARGUMENTS AND DISCUSSION

A

CLIMATE CHANGE IS IMPACTING THE PHILIPPINES AND FILIPINOS SUFFER DISPROPORTIONATELY FROM THESE IMPACTS.

8.1. The Philippines is highly vulnerable to the impacts of climate change: indeed, in the *World Index Report 2016*,³⁰² the Philippines ranked number three in terms of exposure and vulnerability. This was attributed to the number of tropical cyclones and also the number of disasters that are being experienced in the country.³⁰³ In the most recent *Global Peace Index*, published by the Australian think-tank Institute for Economics and Peace (IEP), the Philippines climbed the ladder and ranked Number 1 in terms of exposure to climate hazards.³⁰⁴

8.2. As testified to by expert witness Ms. Rosalina De Guzman, Assistant Weather Services Chief of the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), since the 1950s, the Philippine climate, like the rest of the world, is warming. From 1951-2010, the annual mean temperature has increased by 0.65°C.³⁰⁵ Daily temperature extremes show more hot days and fewer cold nights.³⁰⁶

³⁰² United Nations University Institute for Environment and Human Security, *World Risk Report 2016*, available at https://collections.unu.edu/eserv/UNU:5763/WorldRiskReport2016_small_meta.pdf (last accessed on 06 September 2019); Also see: Testimony of Ms. Rosalina De Guzman, TSN 27-28 March 2018, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-March-27-to-28-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

³⁰³ De Guzman, R., TSN 27-28 March 2018, p. 92, *supra* note 302.

³⁰⁴ Institute for Economic and Peace, *Global Peace Index 2019*, Figure 2.35, p. 48, available at <https://reliefweb.int/sites/reliefweb.int/files/resources/GPI-2019-web003.pdf> (last accessed on 12 September 2019).

³⁰⁵ See Exhibit “W” to “W-14,” Cinco, TA., et al. (2014), *Long-term trends and extremes in observed daily precipitation and near surface air temperatures in the Philippines for the period 1951-2010*, Atmospheric Research Vol. 145-146, Fig 2, p.17, also available at <https://www.sciencedirect.com/science/article/pii/S0169809514001495> (last accessed on 12 September 2019).

³⁰⁶ This observation was based on the trends in the frequency of days with minimum temperature below the 1st percentile (cold nights) and the trends in frequency of days with maximum temperature above the 99th percentile (hot days); See: Exhibit “V” to “V-2,” *Statement of Ms. Rosalina de Guzman*, dated 16 March 2018, p. 1.

8.3. Further, Ms. De Guzman explained that “with regard to trends in extreme daily rainfall, majority of the weather stations all over the Philippines showed [an] increasing trend in the number of days with extreme rainfall events. Rainfall trends in some synoptic weather stations show a significant increase in both intensity and frequency, particularly in the cities of Laoag, Infanta, Tacloban, Iloilo, and Cotabato.”³⁰⁷

8.4. The following observations relating to the state of the Philippine climate were reported by PAGASA, as follows:

Observed daily precipitation and near surface air temperature data from 34 synoptic weather stations in the Philippines for the period 1951–2010 were subjected to trend analysis which revealed an overall warming tendency compared to the normal mean values for the period 1961–1990. This warming trend can be observed in the annual mean temperatures, daily minimum mean temperatures and to a lesser extent, daily maximum mean temperatures. Precipitation and temperature extremes for the period 1951–2010 were also analyzed relative to the mean 1961–1990 baseline values. Some stations (Cotabato, Iloilo, Laoag and Tacloban,) show increases in both frequency and intensity of extreme daily rainfall events which are significant at the 95% level with none of the stations showing decreasing trends. The frequency of daily temperature maximum above the 99th percentile (hot days) and nights at the 1st percentile (cold nights) suggests that both days and nights in particular are becoming warmer. Such indicators of a warming trend and increase in extreme events in the Philippines are discussed in the context of similar national, regional (Asia Pacific) and global studies. The relevance of such empirically based climatology studies, particularly for nations such as the Philippines which are increasingly vulnerable to the multiple impacts of global climate change, is also considered.³⁰⁸

Impacts of climate change in the Philippines

A. Warming Oceans and Ocean Acidification

8.5. According to the IPCC, “[t]he ocean plays a central role in the Earth’s climate.”³⁰⁹ Around the world, 850 million people live within 100 km

³⁰⁷ *Id.*; Extreme rainfall intensity is the mean intensity of events greater than or equal to the 99th percentile each year, while extreme rainfall frequency is the mean frequency of events greater than or equal to the 99th percentile each year. See also Cinco *et al.*, *supra* note 305 at Table 3, p. 24.

³⁰⁸ Cinco *et al.*, *supra* note 305, p. 1 (Abstract).

³⁰⁹ Hoegh-Guldberg, O., *et al.*, (2014), *The Ocean. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects*. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Cambridge, United

of tropical coastal ecosystems, such as coral reefs and mangroves, from which they derive multiple benefits including food, coastal protection, cultural services, and income from industries such as fishing and tourism.³¹⁰ In particular, 62% of Filipinos live in coastal zone.³¹¹ The impacts of climate change -- and specifically increases in ocean warming and other climate-related stressors -- threaten coastal ecosystems and the services, goods and benefits that Filipinos depend on.

8.6. Ocean acidification is a direct consequence of an increased concentration of human-made CO₂ emissions into the atmosphere. As stated in the **2014 IPCC AR5**, oceans have absorbed 93% of the extra energy from the enhanced greenhouse effect and approximately 30% of anthropogenic CO₂ from the atmosphere.³¹² As CO₂ dissolves in sea water it forms carbonic acid, which decreases the ocean's pH level and leads to a suite of changes collectively known as ocean acidification.³¹³

8.7. Ocean acidification has already affected the distribution and abundance of marine organisms and ecosystems.³¹⁴ Ocean acidification affects the formation and dissolution of calcium carbonate shells and skeletons in a range of marine species, including corals, mollusks, and many plankton species that form the base of marine food chains.³¹⁵

8.8. In addition to ocean acidification, the global average sea surface temperature has increased since the beginning of the 20th century; a trend that has been particularly acute during the 1950s.³¹⁶ Increased ocean warming causes corals to expel the symbiotic algae living in their tissues, responsible for their color. A spike of 1–2°C in ocean temperatures sustained over several weeks can lead to bleaching. When corals are bleached for prolonged periods, they eventually die. Coral bleaching events often lead to the death of large amounts of corals.³¹⁷

8.9. Coral reefs are, therefore, particularly vulnerable to climate impacts such as ocean warming, as well as to the parallel impact of rising CO₂ leading to ocean acidification. Furthermore, since coral reefs (and kelp

Kingdom and New York, NY, USA, pp. 1655-1731 (hereinafter, "IPCC, WGII, AR 5 Chapter 30: The Ocean"), p. 1658.

³¹⁰ *Id.*, p. 1688.

³¹¹ One Ocean, *Managing Philippine Coasts and Seas: Understanding the Challenge*, available at http://oneocean.org/flash/the_philippine_seas.html (last accessed on 12 September 2019).

³¹² IPCC, WGII, AR 5 Chapter 30: The Ocean, *supra* note 309, p. 1658.

³¹³ Testimony of Dr. Laura David, TSN 27-28 March 2018, p. 139, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-March-27-to-28-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

³¹⁴ *Ibid.*

³¹⁵ Also see explanations in Exhibit "B" to "B-3," *Joint Statement of Maria Lourdes San Diego-McGlone, PhD Chemical Oceanography, Laura David, PhD Physical Oceanography and Porfirio Aliño, PhD Marine Chemical Ecology (Graham, et. al.)*, p. 2.

³¹⁶ IPCC, WGII, AR 5 Chapter 30: The Ocean, *supra* note 309, p. 1658.

³¹⁷ David, L., *supra* note 313, p. 139.

forests) are relatively unable to relocate, they are projected to experience high rates of mortality and loss. The *IPCC SR 1.5* warns that the majority (70–90%) of warm water (tropical) coral reefs that exist today will disappear even if global warming is constrained to 1.5°C (very high confidence³¹⁸), and 99% of all corals will disappear at 2°C.³¹⁹

8.10. Warming ocean temperatures, and declining pH and carbonate ion concentrations in ocean acidification, represent risks to the productivity of fisheries and aquaculture, and the security of regional livelihoods, as stated in *IPCC AR5*.³²⁰

8.11. The Philippines could be one of the most severely affected by these impacts, as it has 18,000 kilometers of shoreline³²¹ and approximately one million reef fishers (without counting aquaculture).³²² The Philippines also has 26,000 km² of coral reefs, which is a large share of the coral reef area of the coral triangle (96,000 km²). Although only occupying a small share of world's oceans, they play a crucial role for biodiversity by providing habitat for a significant proportion of marine life—creating highly productive ecosystems in relatively low nutrient water regions.³²³

8.12. Loss of coral cover typically result in the decline of smaller-bodied coral-associated fishes that are dependent on the structure of reef habitat for shelter.³²⁴ If the small fish disappear, the number of bigger fishes will also diminish, causing dramatic changes in species distribution.³²⁵

8.13. Warming oceans and ocean acidification threaten human food security and the tourism industry, as confirmed by the *IPCC SR 1.5*:

Small-scale fisheries in tropical regions, which are very dependent on habitat provided by coastal ecosystems such as coral reefs, mangroves, seagrass and kelp forests, are expected to face growing risks at 1.5°C of warming because

³¹⁸ Discussion of terms “confidence” and “likelihood,” *supra* note 116.

³¹⁹ IPCC SR 1.5, available at

https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf (last accessed on 12 September 2019), *Technical Summary*, p. 38.

³²⁰ IPCC, WGII, AR 5 Chapter 30: The Ocean, *supra* note 309, p. 1658.

³²¹ One Ocean, *Managing Philippine Coasts and Seas: Understanding the Challenge*, available at http://oneocean.org/flash/the_philippine_seas.html (last accessed on 12 September 2019).

³²² Teh, L., et al. (19 June 2013), *A Global Estimate of the Number of Coral Reef Fishers*. PLOS ONE 8(6): e65397. <https://doi.org/10.1371/journal.pone.0065397>, at Table 3, available at <https://journals.plos.org/plosone/article/citation?id=10.1371/journal.pone.0065397> (last accessed on 12 September 2019).

³²³ Exhibit “L” to “L-38,” *Literature Review of Studies Related to Climate Change Impacts in the Philippines*, p. 23.

³²⁴ Exhibit “FF” to “FF-7,” *Printed PowerPoint presentation of Maria Lourdes San Diego-McGlone, PhD; Laura David, PhD; and Porfirio Aliño, PhD, entitled “How Increased CO₂ Affects the Oceans,”* slide 9.

³²⁵ David, L., *supra* note 313, p. 137; See also Cheung, W., et al. (2010), *Large-scale redistribution of maximum fisheries catch potential in the global ocean under climate change*. *Global Change Biology*, 16[1], pp. 24–35, available at <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2486.2009.01995.x> (last accessed on 12 September 2019).

of loss of habitat (medium confidence). Risks of impacts and decreasing food security are projected to become greater as global warming reaches beyond 1.5°C and both ocean warming and acidification increase, with substantial losses likely for coastal livelihoods and industries (e.g., fisheries and aquaculture).³²⁶

8.14. Indeed, a study by *Cheung et al.* concludes that projected changes in catch potential in 2055 show a slightly increasing trend for the area north of the Philippines, and a stronger decreasing trend for the area south of the Philippines.³²⁷ This has a direct impact on petitioners' food security.³²⁸ The projected changes also show a huge reduction of between 31% and 50% in available fish catch due to temperature change alone.³²⁹ In her testimony before the Honorable Commission, expert witness Dr. Laura David, Professor at the Marine Science Institute of the University of the Philippines Diliman, explains:

If you take a look at the map, the Philippines is actually located on the left-middle side right next to the Pacific. And you see there is already a predicted great reduction of fifty percent (50%) of available fish catch by year 2050. Aside from this, locally, we also have fish that is only used to certain degrees of temperature. So it's very much like somebody that's used to living in Baguio and then you go down to Manila. There's this temperature difference. But in the case of fish, it affects their function dramatically, such that they would rather go to somewhere colder if this happens. So that means they either go in higher latitude or they go deeper. Either reaction would result to less accessibility to our fishermen. Aside from this, those that cannot migrate—because there are certain fish who live only in certain areas like mangroves, sea grass, corals—the end result would be recruitment failure. Meaning, the next generation, when they give birth, can no longer survive in that area. So the adults would remain for a while, but the next generation would disappear.³³⁰

³²⁶ IPCC SR 1.5, *supra* note 319, *Technical Summary*, p. 38.

³²⁷ Mastrandrea, *et al.* (2010), *Guidance Notes for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties*. Intergovernmental Panel on Climate Change, citing *op. cit.* Cheung, W., *et al.* (2010), *Large-scale redistribution of maximum fisheries catch potential in the global ocean under climate change*. *Global Change Biology*, 16[1], pp. 24–35., *supra* note 325, at Figure 2; See also Food and Agriculture Organization of the United Nations (2018), *Impacts of climate change on fisheries and aquaculture: Synthesis of current knowledge, adaptation and mitigation options*, p. 622, available at <https://mobil.wwf.de/fileadmin/fm-wwf/lichtblick/FAO-Report-2018.pdf> (last accessed on 12 September 2019).

³²⁸ David, L., *supra* note 313, p. 137.

³²⁹ *Id.*; also Exhibit “FF” to “FF-7,” *Printed PowerPoint presentation of Maria Lourdes San Diego-McGlone, PhD; Laura David, PhD; and Porfirio Aliño, PhD, entitled “How Increased CO₂ Affects the Oceans,”* slide 9.

³³⁰ David, L., *supra* note 313, p. 137.

B. Sea-level rise

8.15. The Philippines is particularly vulnerable to sea level rise as 60% of its municipalities and 10 of its largest cities are located along the coast (where roughly 60% of the population resides).³³¹ A study by *Rietbroek, et al.* on regional sea-level budgets showed that “well above sea-level rise is found regionally near the Philippines (14.7 ± 4.39 mm/y).”³³²

8.16. Among the numerous consequences of sea-level rise, two-related phenomena are particularly relevant to the Philippines: the increase in coastal erosion and the compromise of mangrove habitats. There is an **increase in coastal erosion** because erosion is driven by contact with ocean water. Even a slight increase in sea-level, such as the 7 to 10 millimeters per year experienced in the Philippines, leads to the exposure of hundreds of meters of additional coast. This is especially true for low-lying coasts.³³³ Dr. David, in her testimony before the Honorable Commission, illustrated this phenomenon to give us a better picture:

For example, if you go around the Philippines, areas like Boracay, Sagay, Negros Occidental and Oriental, there’s a huge part of those areas that are low-lying. So even if you’re already four kilometers (4 km) inland, the elevation is just four meters (4 m) or less. That means you’re going to expose a lot more land to possible erosion from the waves. **And with increasing sea-level rise, you’re exposing more communities to this erosion.** We’re not even including storm surges in this story.³³⁴ (Emphasis supplied)

xxx

In Gusa, Cagayan de Oro, historically, they have harvested coral reefs to be part of the church, to be part of the historical buildings. They’ve been harvesting since the last century. But the consequence of that is their coast is slowly eroding, such that houses that were built before that seem to be far from the sea are now right next to the sea....³³⁵

8.17. A second related effect of sea-level rise is the **compromise of mangrove habitats**. Mangroves act as nursery grounds for fish, which can start their lives among their roots as a means of avoiding predators. Those juvenile fish go on to become an important food source in the Philippines when they mature. If mangroves are compromised, the food security of the

³³¹ World Bank Group (2011), *Climate Risk and Adaptation Country Profile: Philippines*, p. 7, available at https://climateknowledgeportal.worldbank.org/sites/default/files/2018-10/wb_gfdr climate_change_country_profile_for_PHL.pdf (last accessed on 12 September 2019).

³³² Rietbroek, R., *et al.* (09 February 2016), *Revisiting the contemporary sea-level budget on global and regional scales*, PNAS, p. 113 (6) 1504-1509, available at <https://www.pnas.org/content/113/6/1504> (last accessed on 12 September 2019).

³³³ David, L., *supra* note 313, p. 137.

³³⁴ *Ibid.*

³³⁵ David, L., *supra* note 313, p. 141.

Philippines is, therefore, compromised. The United Nations estimates that up to **thirteen percent (13%) of mangroves in the Pacific Island countries and territories will disappear due to sea-level rise alone by 2100.**³³⁶

C. Increasing intensity of tropical cyclones

8.18. In the past sixty-five (65) years there has been a slight decrease in the frequency of tropical cyclones passing through the Philippine Area of Responsibility (PAR), but a slight increase in the frequency of extreme tropical cyclones with maximum wind speeds of 150 kph or greater. This has led to an increase in the annual rate of damage and costs caused to the Philippines.³³⁷ By the mid-21st century, assuming large increases in GHG concentrations, tropical cyclones in the Philippine region will likely remain the same or decrease. In the same period, however, results show an increase in the intensity of tropical cyclones in the Philippines.³³⁸

8.19. More than six thousand people lost their lives and over a million dwellings were destroyed from super typhoon Haiyan. In total, more than 16 Million people were in some way affected by the typhoon.³³⁹ Super Typhoon Mangkhut made landfall in northern Philippines as a category 5 last September 2018. Tragically, the cascading consequences are still unfolding.³⁴⁰

8.20. As further explained in **Section D, Part VIII** below, there is scientific evidence that that climate change likely made super typhoon Haiyan more intense—as it had larger maximum wind coverage, it had moved faster, and it had higher storm surges at shore.³⁴¹

D. Rainfall

8.21. Climate projections made by the Food and Agriculture Organization of the United Nations (FAO), PAGASA, and others, based on

³³⁶ UNEP (2006), *Pacific Island Mangroves in a Changing Climate and Rising Sea*, p. 9, available at <https://wedocs.unep.org/bitstream/handle/20.500.11822/11812/rsrs179.pdf?sequence=1&isAllowed=y> (last accessed on 12 September 2019).

³³⁷ De Guzman, R., *supra* note 302, pp. 97-98.

³³⁸ *Ibid.*; also Exhibit “Y” to “Y-27,” *Printed PowerPoint presentation of Ms. Rosalina de Guzman, entitled “Observed Climate Trends and Projections in the Philippines,”* slide 27.

³³⁹ *Effects of Typhoon Yolanda (Haiyan)*, p. 3, available at [http://www.ndrrmc.gov.ph/attachments/article/1329/Effects_of_Typhoon_YOLANDA_\(HAIYAN\)_SitRep_No_10_10NOV2013_0600H.pdf](http://www.ndrrmc.gov.ph/attachments/article/1329/Effects_of_Typhoon_YOLANDA_(HAIYAN)_SitRep_No_10_10NOV2013_0600H.pdf) (last accessed on 12 September 2019).

³⁴⁰ See Exhibit “EEEEEEEE” to “EEEEEEEE-3,” *Statement of Brenda Ekwurzel*, dated 20 September 2018, p. 3, citing Soria, J. L. A., Switzer, A. D., Villanoy, C. L., Fritz, H. M., Bilgera, P. H. T., Cabrera, O. C., Siringan, F. P., Maria, Y. Y. S., Ramos, R. D., and Fernandez, I. Q., 2015, *Repeat storm surge disasters of Typhoon Haiyan and its 1897 predecessor in the Philippines*, *Bulletin of American Meteorological Society*, doi:10.1175/BAMS-D-14-00245.1.

³⁴¹ *Ibid.*

the *IPCC AR5 Representative Concentration Pathways* (RCPs), show what impacts could look like following different emissions reductions scenarios.³⁴²

8.22. In a business-as-usual scenario, the 10th percentile rainfall could be reduced as much as 40% in many areas, particularly, over Mindanao. Such a reduction in Mindanao, which relies on hydropower generation, is a big concern.³⁴³ In other areas, particularly in Luzon and Western Visayas, rainfall could increase over 40%. This has implications for infrastructure that was not designed to handle rainfalls this heavy.³⁴⁴ In her testimony, Ms. De Guzman illustrated the implications in this way—

... In terms of rainfalls, what are our key findings in the future. . . . So the driest possible rainfall change is ten (10) percentile of rainfall or could reach up to forty (40) percent reduction in many areas, particularly Mindanao. As I've said earlier, there is the implication, for example, if Mindanao, the source of power is hydropower generation. If you have forty percent (40%) reduction in rainfall, that is a big concern for hydropower. And the wettest possible, on the other hand, could exceed forty percent (40%) increase in rainfall, particularly over Luzon and western section of Visayas. This also has implication, for example, in future design of infrastructure. So, if your rainfall, especially in mountainous areas where the rainfall is already very high—for example, in Baguio, our maximum one (1) day rainfall is one thousand (1,000) millimeter a day, just for one (1) days alone—and this could mean if there is an increase in rainfall by about forty percent (40%), so those areas will be wetter than normal.³⁴⁵

E. Agriculture

8.23. Climate change exacerbates land degradation, particularly in low-lying coastal areas, river deltas, and drylands. The latest *IPCC SRCCL* notes that over the period of 1961-2013, the annual area of drylands in drought has increased on average by slightly more than 1% per year, with large inter-annual variability, at a global scale.³⁴⁶

8.24. As reported by the Food and Agriculture Organization (FAO) of the United Nations, projected impacts on agriculture in the Philippines reveal that there will be direct impacts on staple food, like corn and rice yields, due

³⁴² FAO-AMICAF Philippines (2014), *Assessments of Climate Change Impacts and Mapping of Vulnerability to Food Insecurity under Climate Change to Strengthen Household Food Security with Livelihoods' Adaptation Approaches (AMICAF) Step 1- Assessment of Climate Change Impacts on Agriculture*, available at <http://www.fao.org/3/a-br333e.pdf> (last accessed on 12 September 2019).

³⁴³ De Guzman, R., *supra* note 302, p. 97; also Exhibit "Y" to "Y-27," *Printed PowerPoint presentation of Ms. Rosalina de Guzman, entitled "Observed Climate Trends and Projections in the Philippines,"* slide 25.

³⁴⁴ *Ibid.*

³⁴⁵ De Guzman, R., *supra* note 302, p. 97.

³⁴⁶ IPCC 2019, Summary for Policymakers: Climate Change and Land, *supra* note 111, Sec. A1.4.

to climate change.³⁴⁷ This was confirmed by expert witness Undersecretary Segfredo Serrano of the Department of Agriculture's Policy and Planning, to wit:

- a. 10% rice yield reduction for every 1°C increase in night temperatures;
- b. 1.7% reduction on corn/maize yield for each day above 30°C under drought conditions;
- c. Substantial yield reductions in vegetables and fruits;
- d. A 3-5% reduction in feed intake for every 1°C above 30°C;
- e. Increased soil salinity resulting in drastically lower yields to pre-Green Revolution levels;
- f. Flood-driven crop losses even for water-intensive crops;
- g. Water scarcity and drought effects on rainfed areas cultivated by the poorest rice farmers;
- h. Increased losses from pests, diseases and weeds; and
- i. Further crop losses due to lodging from high wind velocities.³⁴⁸

8.25. In line with the global effects noted by IPCC science, the abovementioned impacts will pose great general food supply challenges, such as higher food prices, higher malnutrition, and food insecurity risks; higher production and marketing costs for farmers resulting in income and livelihood losses; and reduced catches and increased costs for fisherfolks.³⁴⁹ The impacts of climate change on agriculture are further discussed below in section B.6 (The right to food).

F. Forests and Biodiversity

8.26. As stated in the *IPCC SRCCL*, “[l]and is both a source and a sink of GHGs and plays a key role in the exchange of energy, water and aerosols between the land surface and atmosphere. Land ecosystems and biodiversity

³⁴⁷ Bordey, F.H., *et al.*, *Assessment of Climate Change Impacts on Crop Yields in the Philippines*, Food and Agriculture Organization of the United Nations, available at <http://www.fao.org/3/a-bt560e.pdf> (last accessed on 12 September 2019).

³⁴⁸ Exhibit “UUU” to “UUU-8,” *Printed PowerPoint Presentation of Usec. Segfredo R. Serrano (Climate Change & Philippine Agriculture)*, slides 8-9.

³⁴⁹ De Guzman., R., *supra* note 302, pg. 96-98; Also see: Exhibit “UUU” to “UUU-8,” *Printed PowerPoint presentation of Usec. Segfredo R. Serrano, entitled “Climate Change & Philippine Agriculture,”* slides 14-16.

are vulnerable to ongoing climate change and weather and climate extremes, to different extents.”³⁵⁰

8.27. The *IPBES Global Assessment Report on Biodiversity and Ecosystem Services* also states that climate change is a direct driver that is increasingly exacerbating the impact of other drivers on nature and human well-being.³⁵¹ “The impacts of climate change have contributed to widespread impacts in many aspects of biodiversity, including species distribution, phenology, population dynamics, community structure and ecosystem function. According to observational evidence, these effects are accelerating in marine, terrestrial, and freshwater ecosystems and are already impacting agriculture, aquaculture, fisheries, and nature’s contributions to people.”³⁵²

8.28. Climate change is already forcing biodiversity to adapt by shifting habitats, changing life cycles, or developing new physical traits.³⁵³ The *IPBES Global Assessment Report on Biodiversity and Ecosystem Services* also states that “climate change is projected to become increasingly important as a direct driver of changes in nature and its contributions to people in the next decades. . . . Even for global warming of 1.5°C to 2°C, the majority of terrestrial species ranges are projected to shrink dramatically. . . . Therefore, scenarios show that limiting global warming to well below 2°C plays a critical role in reducing adverse impacts on nature and its contributions to people.”³⁵⁴

8.29. Projected adverse impacts of climate change on forests include increased occurrence of forest fires, which will put the forests at risk and increased occurrence of pests and diseases and loss of thousands of species. With the reduction of the forest area, ecosystem services such as biodiversity, water, climate regulation, soil and water purification, recreational, cultural and spiritual benefits provided by the forests will also decrease.³⁵⁵ Tropical forests, like the ones in the Philippines, also have the largest potential to mitigate climate change amongst the world’s forests through conservation of existing carbon pools (e.g. prevention of deforestation) and expansion of carbon sinks.³⁵⁶

³⁵⁰ IPCC 2019, Summary for Policymakers: Climate Change and Land, *supra* note 111, Sec. A1.2.

³⁵¹ IPBES, Díaz, J., Settele, E., *et al.* (2019), *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (hereinafter, “IPBES 2019”), Sec. B2, available at https://www.ipbes.net/system/tdf/ipbes_7_10_add-1-_advance_0.pdf?file=1&type=node&id=35245 (last accessed on 12 September 2019).

³⁵² *Ibid.*

³⁵³ *Ibid.*

³⁵⁴ *Ibid.*

³⁵⁵ Lasco, R., *et al.* (June 2008), *Climate Change and Forest Ecosystems in the Philippines: Vulnerability, Adaptation and Mitigation*, *Journal of Environmental Science and Management*, available at https://www.researchgate.net/publication/237298215_Climate_Change_and_Forest_Ecosystems_in_the_Philippines_Vulnerability_Adaptation_and_Mitigation (last accessed on 12 September 2019).

³⁵⁶ *Ibid.*, p. 6.

8.30. In the Philippine setting, there are only three studies on the impacts of climate change on Philippine forests and biodiversity that are available to date; thus, this warrants further studies considering the importance of the topic in the Philippine context. The first one is at the forest biome level (Lasco, Pulhin, Sanchez, Villamor, & Villegas, 2008), the second one is at the tree species level (Garcia, Lasco, Ines, Lyon, & Pulhin, 2013), and the third study investigated bird species (Snelder, van Weerd, van't Zelfde, & Tamis, 2013).³⁵⁷

8.31. The first study by *Lasco et al.* (2008) “showed in general that tropical forest areas in the Philippines would expand as temperature and rainfall increase, but not for all forest types. It utilized the Holdridge life zones, an ecological classification system based on the three climatic factors: rainfall, heat (bio-temperature), and humidity (potential evapotranspiration ratio) to classify Philippine forest types.”³⁵⁸

8.32. *Lasco et al.* study also revealed that “without any anthropogenic influence, the potential vegetation at current temperature and rainfall would be dominated by the dry tropical, moist tropical, and wet tropical forest life zones. . . . Increasing temperature and rainfall resulted in a re-distribution of forest zones. The dry forests are the most vulnerable forest types as it will be totally eliminated with at least a 1°C rise in temperature and a 25% rise in rainfall. . . . Moist forests are also vulnerable especially under higher rainfall increase. On the positive side, there will be a significant increase in rain forest types as rainfall increases.”³⁵⁹

8.33. The second study by *Garcia et al.* (2013), on the other hand, “aimed to evaluate the consequences of climate change on geographical distributions and habitat suitability of 14 threatened forest tree species in the Philippines. Based on the principle of maximum entropy, it utilized a machine algorithm called Maxent to estimate a target probability distribution and habitat suitability of the selected species.”³⁶⁰

8.34. *Garcia et al.* study also demonstrated that “seven species (*Afzelia rhomboidea*; *Koordersiodendron pinnatum*; *Mangifera altissima*; *Shorea contorta*; *Shorea palosapis*; *Shorea polysperma*; *Vitex parviflora*) were found to likely benefit from future rainfall and temperature scenarios due to the potential increase in their suitable habitat, while the other seven species (*Agathis philippinensis*; *Celtis luzonica*; *Dipterocarpus grandiflorus*; *Shorea guiso*; *Shorea negrosensis*; *Toona calantas*; *Vatica mangachapoi*) will likely experience decline in their suitable habitat.”³⁶¹

³⁵⁷ Philippine Climate Change Assessment (2017), p. 21, available at <https://climate.gov.ph/files/PhilCCA-WG2.pdf> (last accessed on 12 September 2019).

³⁵⁸ *Ibid.*

³⁵⁹ *Ibid.*

³⁶⁰ *Ibid.*

³⁶¹ *Ibid.*, p. 22.

8.35. The third study by *Snelder et al.* (2013) “investigated climate change impacts of bird species in northern Luzon using a similar technique as that of *Garcia et al.* (2013).³⁶² *Snelder et al.* (2013) study, among others, exposed that “the effects of climate and land use changes on bird species distribution are partly following the changes in forest habitats. Under A1 [worst] scenario, the models predict a considerable decrease in most forest bird species. The same is true for endemic and red list bird species.”³⁶³

8.36. The above study by *Snelder et al.* complemented the findings of expert witness Dr. Neil Aldrin Mallari, President and Chief Scientist at the Center for Conservation Innovations, Inc. In his testimony before the Honorable Commission, he mentioned that the Philippines is of crucial importance to global biodiversity because of its exceptional levels of narrow endemism, both terrestrial and marine. In fact, 61% overall endemism for terrestrial vertebrates or 6 out of 10 animals can only be found here in the Philippines.³⁶⁴ Dr. Mallari exposed that, unfortunately, the unique biodiversity of the Philippines has become particularly vulnerable to the deleterious effects of climate change.³⁶⁵ **Examples of species affected are Philippine eagle, tamaraws in Mindoro,³⁶⁶ peacock pheasant in Palawan,³⁶⁷ bleeding heart pigeon in Negros,³⁶⁸ and vulnerable species in Upper Marikina Watershed like the kingfisher.³⁶⁹**

8.37. Dr. Mallari also testified that, with respect to the current state of the Philippine forest, **most of the country’s islands have less than 20% forest cover. Cebu has less than 1%, Negros has 3%, and Mindoro has 5%.³⁷⁰** This is crucial since the University of the Philippines - Los Baños came out with a seminal work that said, “[f]or the country to maintain its natural processes: air, water, hydrological cycle, it needs 45% forest cover.”³⁷¹

8.38. As discussed, the Philippines is one of the areas in Southeast Asia that is most exposed to the impacts of climate change. While adaptation through strategies such as disaster management is a priority, mitigation of the underlying problem remains crucial. Below are two illustrations (climate change vulnerability in Southeast Asia versus the World) which indubitably exhibit the vulnerability of the Philippines to climate change.

³⁶² *Ibid.*

³⁶³ *Ibid.*

³⁶⁴ Testimony of Dr. Neil Aldrin Mallari, TSN 29-30 August 2018, p. 221, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-August-29-to-30-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

³⁶⁵ Exhibit “TTTTT,” *Statement of Neil Aldrin D. Mallari, PhD Ecology*, dated 13 August 2018, p.1.

³⁶⁶ Mallari, N., *supra* note 364, p. 222.

³⁶⁷ *Id.*, p. 223.

³⁶⁸ *Ibid.*

³⁶⁹ *Id.*, p. 226.

³⁷⁰ Mallari, N., *supra* note 364, p. 226.

³⁷¹ *Ibid.*

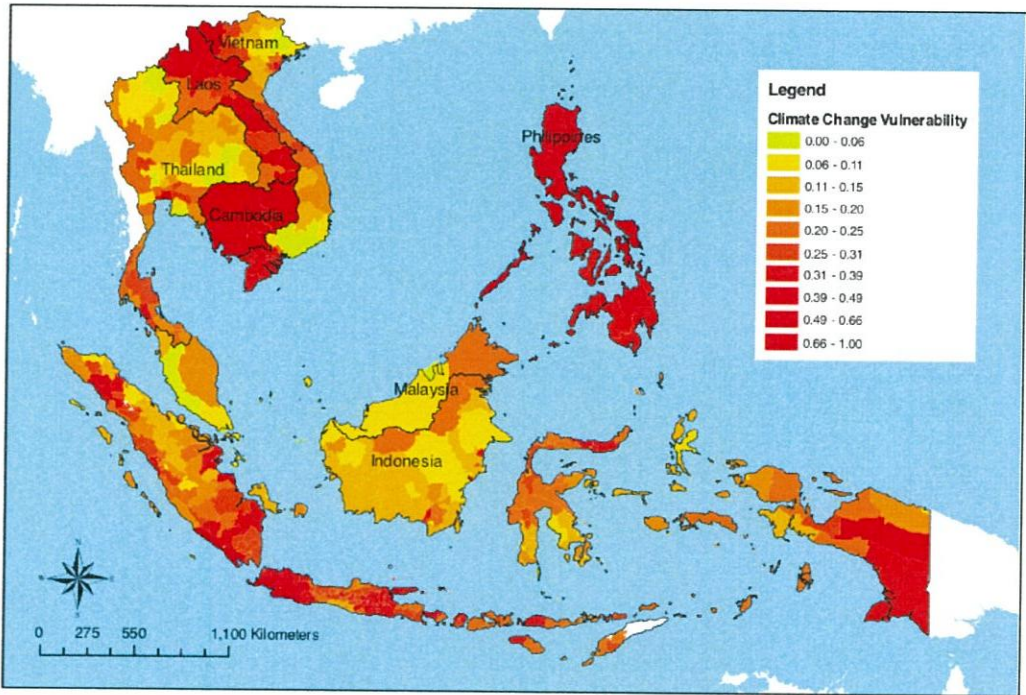


Figure 6. Climate change vulnerability map of Southeast Asia

Figure 4: Climate Change vulnerability map of Southeast Asia³⁷²

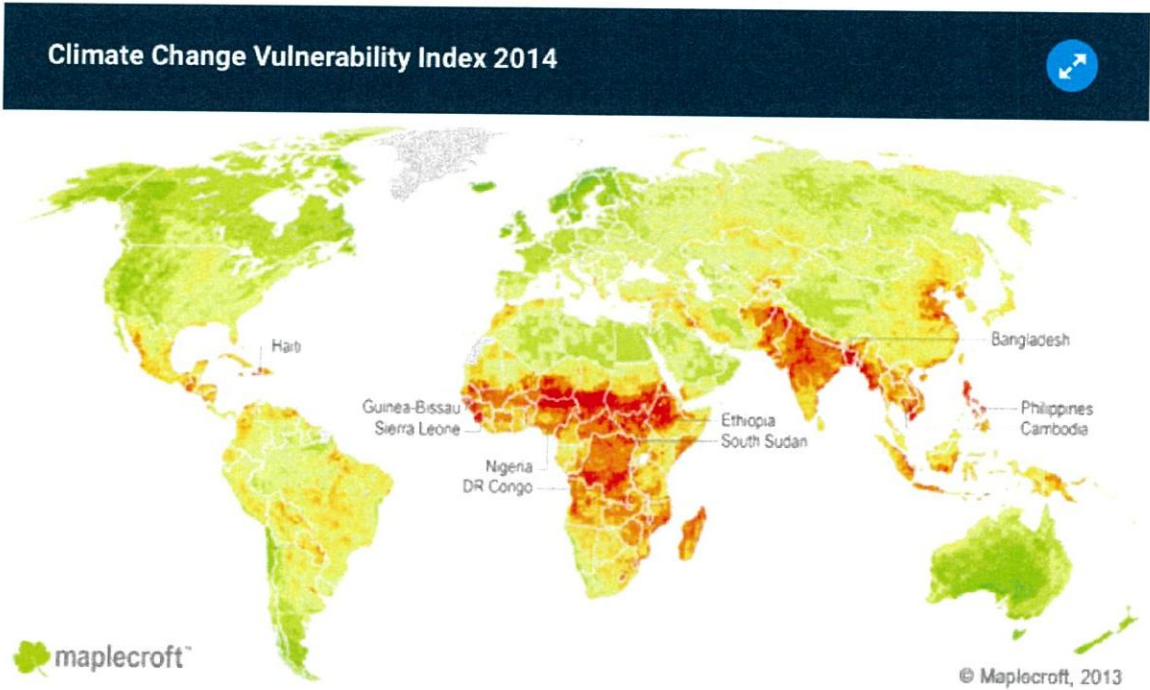


Figure 5: 31% of Global Economic Output Forecast to Face Climate Change Risks by 2025 Climate Change and Environmental Risk Atlas 2014³⁷³

³⁷² Figure 4: Yusuf, A., *et al.* (January 2009), *Climate Change Vulnerability Mapping for Southeast Asia*, p. 11, available at <https://www.idrc.ca/sites/default/files/sp/Documents%20EN/climate-change-vulnerability-mapping-sa.pdf> (last accessed on 12 September 2019).

³⁷³ Figure 5: Verisk Maplecroft (30 October 2014), *31% of Global Economic Output Forecast to Face Climate Change Risks by 2025* (Climate Change and Environmental Risk Atlas 2014), available at <https://www.maplecroft.com/insights/analysis/global-economic-output-forecast-faces-high-or-extreme-climate-change-risks-by-2025/> (last accessed on 12 September 2019).

B

**CLIMATE CHANGE RESULTS IN
-- AND/OR THREATENS -- THE
IMPAIRMENT, INFRINGEMENT,
ABUSE, AND/OR VIOLATION OF
THE HUMAN RIGHTS OF THE
FILIPINOS.**

8.39. During his testimony before the Honorable Commission, expert witness Mr. Kumi Naidoo, Executive Director of Amnesty International, highlighted that, “[c]limate change is a human rights issue not only because its devastating impacts affect the enjoyment of human rights, but also because it is a man-made phenomenon which can be mitigated.”³⁷⁴

8.40. As the climate changes the impacts on ecosystems, the increased frequency and intensity of extreme rapid onset events such as super typhoons, the slow onset impacts like sea-level rise and ocean acidification, and the increased potential for conflict and displacement, will continue to affect both **human dignity** and a **broad range of human rights**. As will be discussed below, these range from the fundamental right to dignity, to life, to a clean and healthy environment (or to a balanced and healthful ecology), including the right to a safe climate, to the highest attainable standard of physical and mental health, to self-determination and development, to food, to water and sanitation, to work and social security, to equality and non-discrimination, and to culture, particularly by vulnerable groups like women, children, those living in extreme poverty, Indigenous Peoples, and local communities.³⁷⁵

8.41. The United Nations Human Rights Council has stated that “climate change poses an immediate and far-reaching threat to people and communities around the world and has adverse implications for the full enjoyment of human rights.”³⁷⁶ UN special rapporteurs and other independent experts jointly issued a letter detailing the implications of climate change for human rights, to wit:

A safe, clean, healthy and sustainable environment is indispensable to the full enjoyment of human rights, including rights to life, health, food, water and housing, among many others.... The most recent report of the Intergovernmental Panel on Climate Change (IPCC) brings into sharp focus the grave harm that climate change is already causing, and will continue to cause, to the

³⁷⁴ Testimony of Kumi Naidoo, TSN dated 11-12 December 2018, p. 120, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-December-11-to-12-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

³⁷⁵ Exhibit “PPPPPP” to “PPPPPP-11,” *Statement of Katherine Loftis* dated 16 September 2018, p. 2.

³⁷⁶ See Exhibit “B-1,” *The Effects of Climate Change on the Full Enjoyment of Human Rights* dated 30 April 2015 (Re: *The UN Special Rapporteur on Human Rights and the Environment on Considerations on Human Rights; Expert Report by John Knox, et al.*), p. 2, citing Human Rights Council Resolution 18/22.

environment on which we all depend. There can no longer be any doubt that climate change interferes with the enjoyment of human rights recognized and protected by international law.³⁷⁷

8.42. It is, thus, beyond cavil that the effects of climate change directly and indirectly impact a range of human rights. The brunt of these human rights violations falls disproportionately on those who have least contributed to the problem, such as the Filipino people. In his fairly recent speech joining the global consensus to fight climate change and exact accountability from those perpetrating this climate crisis, President Rodrigo R. Duterte highlighted Philippines' vulnerability and pronounced that:

We are faced with the same global challenges, but some suffer more than others. Nothing demonstrates this better than climate change. Vulnerabilities are not equally shared by all nations. Developing countries that have contributed the least to global warming, like my country the Philippines, suffer the most from its horrendous consequences.

x x x

Governments with limited resources and capabilities have to contend with this spiral of suffering on top of the urgent development priorities. This vicious cycle is real. And indeed it must end. There has to be a way. When the lives of millions hang in the balance, there has got to be a way.

x x x

With water levels rising, most countries will measure the losses in terms of coastlines. Developing archipelagic nations like the Philippines, however, measure our losses in terms of islands and the lives of our citizens. Year in and year out we suffer doubly when typhoons strike.³⁷⁸

8.43. Below are specific examples of impacts that resulted in impairments, infringements, abuses, and/or violations of the fundamental rights of the petitioners (hereinafter, "human rights harms"), in particular, and the Filipino people, in general. These do not represent all of the human rights harms. Continued research and monitoring are necessary to understand the full scope of the climate crisis unfolding in the country.

³⁷⁷ *Ibid.*, citation omitted.

³⁷⁸ Roque, E. (01 June 201), *PRRD Calls for Accountability on Effects of Climate Change*, Philippine News Agency, available at <https://www.pna.gov.ph/articles/1071275> (last accessed on 12 September 2019).

Climate change resulted in -- and/or threatened -- the impairment, infringement, abuse, and/or violation of the Filipinos' basic right to dignity, to life, to a clean and healthy environment (or to a balanced and healthful ecology), including the right to a safe climate, to the highest attainable standard of physical and mental health, to self-determination and development, to food, to water and sanitation, to work and social security, to equality and non-discrimination, and to culture, among others, particularly by vulnerable groups like women, children, those living in extreme poverty, Indigenous Peoples, and local communities

1. The right to dignity

8.44. Human dignity is the foundation of human rights protection.³⁷⁹ It is firmly rooted in the *Universal Declaration of Human Rights*, which provides that “[a]ll human beings are born free and equal in dignity and right,” as well as in the *International Convention of Civil and Political Rights* (ICCPR) and the *International Convention of Economic, Social and Cultural Rights* (ICESCR), and can be found in more than 160 national Constitutions, including that of the Philippines.³⁸⁰

8.45. The *1987 Philippine Constitution* explicitly affirms the importance of dignity in *Article II, Section 11* on state policies: “The State values the dignity of every human person and guarantees full respect for human rights.” The right to dignity is further affirmed in *Article XIII, Section 1*: “The Congress shall give highest priority to the enactment of measures that protect and enhance the right of all the people to human dignity, reduce social, economic, and political inequalities, and remove cultural inequities by equitably diffusing wealth and political power for the common good.”³⁸¹

³⁷⁹ Testimony of Professor Erin Daly, TSN dated 27-28 September 2018, p. 154, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-September-27-to-28-New-York-United-States.pdf> (last accessed on 12 September 2019).

³⁸⁰ Universal Declaration of Human Rights (adopted 10 December 1948) UNGA Res 217 A (III) (UDHR), Article 1; International Covenant on Civil and Political Rights (adopted 16 December 1966, entered into force 23 March 1976) 999 UNTS 171 (ICCPR), Article 1: “All persons deprived of their liberty shall be treated with humanity and with respect for the inherent dignity of the human person;” International Covenant on Economic, Social and Cultural Rights (adopted 16 December 1966, entered into force 23 March 1976) 993 UNTS 3 (ICESCR), Article 13: “The States Parties to the present Covenant recognize the right of everyone to education. They agree that education shall be directed to the full development of the human personality and the sense of its dignity, and shall strengthen the respect for human rights and fundamental freedoms.

³⁸¹ Section 1, Article XIII, *1987 Philippine Constitution*.

8.46. In interpreting the legal responsibilities of respondent Carbon Majors, the Honorable Commission should keep a dignity lens. Focusing on human dignity would allow the Honorable Commission to see the interdependence, interrelatedness, and indivisibility of all human rights, which is how people experience them in everyday life. As explained by expert resource person³⁸² to the Honorable Commission, Professor Erin Daly of the Delaware Law School:

More nearly than any other human or legal right, dignity expresses the human experience as humans experience it. **People don't think in terms of what rights have been violated. But they know when their dignity has been violated, they know when a company produces conditions that makes them feel less than human, or when a government lets that happen. By focusing on what matters most to people, which is being treated as a person of worth, the law of dignity reminds us of what is really at stake.**³⁸³ (Emphasis supplied)

8.47. As a legal right, the concept of human dignity means every person has equal worth. The first element of the right to dignity is that each person has value, that a person's humanity has inherent worth, and that his or her life matters. The second element is that each person's worth is equal worth to every other person's, and no one's life is more important than anyone else's.³⁸⁴

8.48. "Each person's right to agency, to self-development, to choose one's life course is the same as every other's. **Despite our differences, in our humanity, we are all equal.**"³⁸⁵ The right to dignity, when applied to individuals and groups, recognizes people's intrinsic worth. As Professor Daly stresses, "**human dignity is what gives people the right to have rights.**"³⁸⁶

8.49. The right to dignity is not only relevant to the decisions people make, but also to the quality of people's lives. The right to dignity has also been used to protect the irreducible minimum of the human condition. In addition, dignity defines who we are as individuals and our relationship with the natural environment. As the Supreme Court of Nepal stated: "**[n]ot only that, it cannot be imagined to live with dignity in a polluted environment rather it may create an adverse situation even exposing human life to**

³⁸² An expert invited by the Honorable Commission to shed light on a particular relevant topic

³⁸³ Daly, E., *supra* note 379, p. 157.

³⁸⁴ *Id.*, p. 155.

³⁸⁵ *Ibid.*

³⁸⁶ Daly, E. and May, J. (September 2016), "Bridging Constitutional Dignity and Environmental Rights Jurisprudence," *Journal of Human Rights and the Environment*, Vol. 7 No. 2, available at <http://dx.doi.org/10.4337/jhre.2016.02.02> (last accessed 12 September 2019).

dangers.”³⁸⁷ We thrive in holistic sense, not merely physically, when we live in a stable and healthy environment.

8.50. When super typhoon Haiyan hit and destroyed houses, schools, families, hospitals, and sources of water and food, it was not individually affecting the human rights to housing, education, health, water, and food. It was a combination and turmoil of all these effects (and many others) that made the experience of climate impacts, such as Haiyan, so devastating and so threatening to human dignity.³⁸⁸ As harrowingly recounted by one of the petitioners, Ms. Veronica Cabe—

. . . The floods have changed our lives. I felt like parts of our dignity was lost because we felt displaced.

We felt displaced we didn't have our own space. **We were forced to live with friends** who were willing to share their homes with us. We were separated from each other. My nephews lived in another relative's house. **We relied on relief goods and donations for months. I recall every day I had to queue in line and wait for hours, half a day every day, waiting for possible relief. We did not know if relief would come and then line up again for another day. And then relief goods were thrown at us, and I saw my neighbors struggling against each other just to get their share.** It was chaotic that time. . . .³⁸⁹ (Emphasis supplied)

8.51. Human dignity transcends individual rights to also include the **value of belonging**, of being part of a community, which extends to future generations. The multi-faceted harms of climate change include the destruction of communities, of the sense of belonging, and of hope. The loss of the sense of belonging was clearly articulated by one of the community witnesses in New York City, Ms. Candice Sering, who survived hurricane Sandy—

I would say I can't quantify it in dollars. **It's more about emotional loss, loss for the community, and time spent on figuring out how to rebuild a very small community.** And also loss of vital community members who were vested in Red Hook. So I can't quantify it in dollars what it looks like when you talk about what does your lifestyle look like now. **It's very different to not have that sense of community, to not have new members of Red**

³⁸⁷ See: *On behalf of Pro Public and on his own behalf, Advocate Prakash Mani Sharma v. Godavari Marble Industries Pvt. Ltd. and Others*, 068-WO-0082, available at <https://elaw.org/system/files/English%20translation%20of%20Godavari%20Marble%20Case.pdf>, p. 46 (last accessed on 12 September 2019).

³⁸⁸ Daly, E. *supra* note 379, p.157.

³⁸⁹ Cabe, V., *supra* note 2, pp. 110-111.

Hook to live in the neighborhood as if Sandy had never hit . . .³⁹⁰ (Emphasis supplied)

8.52. Focusing on the right to dignity can advance the present inquiry by keeping the focus directly on the petitioners. While much of the conversation seem abstract, recognizing the right of every person to have his or her dignity reinforces that the inquiry is ultimately about people. Using a dignity lens further helps the legal analysis of human rights as indivisible and experienced interdependently, as well as connect individuals to legal issues by invoking a legally recognized and protected right that people understand and own.

2. The right to life

8.53. Under the *Universal Declaration of Human Rights*,³⁹¹ everyone has the right to life, liberty, and security of person. These same rights are articulated in the *1987 Philippine Constitution's Bill of Rights*.³⁹² This is similarly reiterated in the ICCPR,³⁹³ which echoes that every human being has the inherent right to life.

8.54. According to expert resource person to the Honorable Commission, Mr. Ben Schachter from the U.N. Office of the High Commissioner for Human Rights, “[a]ll States have committed to respect, protect, promote, and fulfill the right to life,” which translates into legal obligations that require, at the very least, effective measures to be taken against foreseeable and preventable loss of life.³⁹⁴

8.55. The Office of the UN High Commissioner for Human Rights (OHCHR) has recognized that climate change “clearly poses a threat to human life” due to the higher incidence of mortality associated with extreme weather events, increased heat, drought, and expanding disease vectors, among other things.³⁹⁵

³⁹⁰ Testimony of Ms. Candice Sering, TSN dated 27-28 September, p. 18, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-September-27-to-28-New-York-United-States.pdf> (last accessed on 12 September 2019).

³⁹¹ Article 3, Article 3, *Universal Declaration of Human Rights* (1948).

³⁹² Sections 1 and 2, Article III of the *1987 Philippine Constitution*.

³⁹³ Article 6, *International Covenant on Civil and Political Rights* (1966).

³⁹⁴ Testimony of Ben Schachter, TSN 6-7 November 2018, p. 71-72, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-November-6-to-7-London-United-Kingdom.pdf> (last accessed on 12 September 2019); Also see: Article 6 Convention on the Rights of the Child; Similar provisions can be found in Art. 2 European Convention for the Protection of Human Rights and Fundamental Freedoms (1950) [hereinafter ECHR], Art. 4 American Convention on Human Rights (1969) [hereinafter ACHR], Art. 4 African Charter on Human and Peoples' Rights (1981) [hereinafter AChHPR]. As a cornerstone of international human rights law, the right to life is not only guaranteed by treaty law provisions, but also part of customary international law.

³⁹⁵ U.N. Human Rights Office of the High Commissioner, *Understanding Human Rights and Climate Change, Submission of the Office of the High Commissioner for Human Rights to the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change*, pp. 13-14, cited in *Joint Summary Amicus*, *supra* note 50, p. 22.

8.56. The World Health Organization (WHO) estimates that between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year from malnutrition, malaria, diarrhea, and heat stress alone.³⁹⁶ Climate change can also affect mortality in other ways that are more difficult to quantify, such as by undermining livelihoods and displacing people from their homes, or exacerbating violent conflict over scarce resources.

8.57. In relation to the link between the right to life and climate change, David R. Boyd, the UN Special Rapporteur on Human Rights and the Environment, issued a statement on the human rights obligations related to climate change, with a focus on the right to life,³⁹⁷ for a climate case in Ireland, entitled “*Friends of the Irish Environment CLG v. The Government of Ireland, Ireland and the Attorney General*.” The UN Special Rapporteur stated that: “(t)here is no doubt that climate change is already violating the right to life and other human rights today. In the future, these violations will expand in terms of geographic scope, severity, and the number of people affected unless effective measures are implemented in the short term to reduce greenhouse gas emissions and protect natural carbon sinks.”³⁹⁸

8.58. In the Philippines, the most significant climate-related threats to life include increases in storm intensity, extreme rainfall, flooding, and landslides, the effects of which will be exacerbated by sea-level rise in coastal areas, as well as prolonged droughts and heat waves. Severe storms like super typhoon Haiyan have already claimed tens of thousands of lives.³⁹⁹

8.59. Testimonies of community witnesses and survivors Ms. Marinel S. Ubaldo,⁴⁰⁰ Ms. Marielle Trixie J. Bacason,⁴⁰¹ and Arthur S. Golong,⁴⁰² who have seen losses of lives of friends and community members due to super typhoon Haiyan, and Ms. Amalia Baihan,⁴⁰³ who lost three (3) children and four (4) grandchildren, including a son-in-law, and Ms. Honeylyn A. Gonzales,⁴⁰⁴ who lost her parents and elder brothers, all due to tropical storm

³⁹⁶ Schachter, B., *supra* note 394; Also see World Health Organization (2014), *Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s*, p. 1, available at https://apps.who.int/iris/bitstream/handle/10665/134014/9789241507691_eng.pdf?sequence=1&isAllowed=y (last accessed on 12 September 2019).

³⁹⁷ Schachter, B., *supra* note 394.

³⁹⁸ Boyd, D. (25 October 2018), UN Special Rapporteur on Human Rights and Environment, *Statement on the human rights obligations related to climate change, with a particular focus on the right to life*, para. 58, p. 13, available at <https://www.ohchr.org/Documents/Issues/Environment/FriendsIrishEnvironment25Oct2018.pdf> (last accessed on 12 September 2019).

³⁹⁹ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 23.

⁴⁰⁰ Exhibit “MMMMMM” to “MMMMMM-5,” *Salaysay ni Marinel S. Ubaldo*, dated 07 September 2018.

⁴⁰¹ Exhibit “NNNNNNN” to “NNNNNNN-6,” *Statement of Ms. Marielle Trixie J. Bacason*, dated 22 October 2018.

⁴⁰² Exhibit “LLLL” to “LLLL-4,” *supra* note 11.

⁴⁰³ Exhibit “CCCCCCCCC” to “CCCCCCCCC-3,” *supra* note 15.

⁴⁰⁴ Exhibit “IIIIIIII” to “IIIIIIII-4,” *supra* note 15.

Sendong (“Washi”), are testaments to the effect on the right to life of these more intensified storms.

8.60. We do not want to count dead bodies again, much less do we want to be part of the bodies to be counted in the aftermath of a typhoon, drought, or other extreme weather events.

8.61. To reiterate, as the Philippine constitutionalist, Fr. Joaquin Bernas, has emphasized: “**with respect to the right to life, it is not just a protection of the right to be alive, or to the security of one’s limb against physical harm. The right to life is the right to a good life.**”⁴⁰⁵

3. **The right to a clean and healthy environment (or the right to a balanced and healthful ecology), including the right to a safe climate**

8.62. The right to a clean and healthy environment, or the right to a balanced and healthful ecology, has increasingly become recognized as an independent human right by over 155 national constitutions and laws.⁴⁰⁶

8.63. The right to a healthy environment has individual and collective dimensions, in the sense that it expresses a universal interest that is owed to both present and future generations. The right to a healthy environment is distinct from the environmental dimensions of other rights and protects the elements of the environment (e.g., forests, rivers, seas, etc.). **The right to a healthy environment is connected to other rights, including the right to life, health, and personality integrity.**⁴⁰⁷

8.64. **The right to a healthy environment also includes the right to a safe climate**, as stated by the U.N. Special Rapporteur on the Right to a Healthy Environment in his *2019 Safe Climate Report*:

The substantive elements of this right include a safe climate, clean air, clean water and adequate sanitation, healthy and sustainably produced food, non-toxic environments in which to live, work, study and play, and healthy biodiversity and ecosystems. These elements are informed by commitments made under international

⁴⁰⁵ Bernas, J.G. (2003), *The 1987 Constitution of the Republic of the Philippines: A Commentary*, 2003 ed.; Manila: Rex Book Store, p. 110.

⁴⁰⁶ See United Nations Human Rights Council (08 January 2019), *Issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment*, Report of the Special Rapporteur, A/HRC/40/55, para. 16, available at <https://undocs.org/en/A/HRC/40/55> (last accessed 12 September 2019).

⁴⁰⁷ Exhibit “CCCC” to “CCCC-6,” *Statement of Dr. Marcos Orellana*, p. 2.

environmental treaties, such as the United Nations Framework Convention on Climate Change

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A safe climate is a vital element of the right to a healthy environment and is absolutely essential to human life and well-being. . . .⁴⁰⁸ (Emphasis supplied)

A copy of the *2019 Safe Climate Report* is attached hereto and made an integral part hereof as **Annex “F.”**

8.65. Climate polluting activities, such as GHGs from the respondent Carbon Majors’ products and services, impact directly on the rights to a clean and healthy environment and a safe climate.⁴⁰⁹ The right to a healthy environment is a basis for the enjoyment of other human rights. It is a right that everyone enjoys, as well as future generations. This was clearly elucidated by the Supreme Court in its landmark decision in the case of *Oposa v. Factoran*.⁴¹⁰

While the right to a balanced and healthful ecology is to be found under the Declaration of Principles and State Policies and not under the Bill of Rights, it does not follow that it is less important than any of the civil and political rights enumerated in the latter. **Such a right belongs to a different category of rights altogether for it concerns nothing less than self-preservation and self-perpetuation — aptly and fittingly stressed by the petitioners — the advancement of which may even be said to predate all governments and constitutions. As a matter of fact, these basic rights need not even be written in the Constitution for they are assumed to exist from the inception of humankind.** If they are now explicitly mentioned in the fundamental charter, it is because of the well-founded fear of its framers that unless the rights to a balanced and healthful ecology and to health are mandated as state policies by the Constitution itself, thereby highlighting their continuing importance and imposing upon the state a solemn obligation to preserve the first and protect and advance the second, the day would not be too far when all else would be lost not only for the present generation, but also for those to come — generations which stand to inherit nothing but parched earth incapable of sustaining life.

⁴⁰⁸ United Nations General Assembly (15 July 2019), *Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment*, A/74/161 (hereinafter, “2019 UN Safe Climate Report”), paras. 43 and 96, available at <https://undocs.org/en/A/74/161> (last accessed on 12 September 2019). **Annex “F.”** hereof.

⁴⁰⁹ Boyd, D., *supra* note 398, pp. 19-20; See also, Our Children’s Trust, *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 52 (“As one example, U.S. District Court Judge Ann Aiken’s November 2016 decision in *Juliana v. United States of America* found both that the U.S. Constitution provides a fundamental right to a stable climate system and that the public trust doctrine is an inherent aspect of sovereignty that cannot be “legislated away.”).

⁴¹⁰ G.R. No. 101083, 30 July 1993.

The right to a balanced and healthful ecology carries with it the correlative duty to refrain from impairing the environment. . . .⁴¹¹ (Emphasis supplied)

4. The right to the highest attainable standard of physical and mental health⁴¹²

8.66. Climate change is the biggest global health threat of the twenty-first century and could reverse five decades of progress in global health, as stated by the *Lancet Commission on Health and Climate Change*.⁴¹³

8.67. The right to health is intimately tied to the right to life and is interconnected with the realization of other human rights. The ICESCR enshrines “the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.”⁴¹⁴ The UDHR also recognizes a right to health as part of the right to an adequate standard of living.⁴¹⁵

8.68. Citing studies from the IPCC, WHO, and other expert bodies, the OHCHR has concluded that climate change negatively affects the right to health.⁴¹⁶ The key impacts of climate change on health include: “increases in the incidence of health-related mortality as well as heat-related respiratory and cardiovascular disease; extreme weather events and natural disasters; expanding disease vectors; nutrition deficits linked to food shortages and loss of livelihoods; violent conflict associated with resource scarcity and displacement of people due to climate change; and adverse impacts on mental health owing to the physical and mental stress caused by various climate-related phenomena (e.g., displacement from homes due to sea level rise).”⁴¹⁷ The United Nations Environment Programme (UNEP) confirms the foregoing and observes that projected climate change scenarios will result in a range of worsening health impacts.⁴¹⁸

⁴¹¹ *Id.*

⁴¹² ICESCR, Art. 12; UDHR, Art 25; CRPD, 25. See Universal Declaration of Human Rights, Art 35 on the right to health can be found directly in some national human rights instruments and if often referred to as the right to an adequate standard of living, Article 25, UDHR), International Covenant on Economic, Social, and Cultural Rights, Art 12 on the right to the highest attainable standard of physical and mental health. Regionally, it can be found in Article 11 of Protocol of San Salvador to the Inter-American Convention on Human Rights, in Article 11 of the European Social Charter and Article 35 of the Charter of Fundamental Rights of the European Union and Article 16 of the African Charter on Human Rights and People’s Rights.

⁴¹³ The Lancet Commission (November 2015), *Health and climate change: policy responses to protect public health*, Lancet, vol. 386, issue 10006, pp. 1861–1914, available at [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(15\)60854-6/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)60854-6/fulltext) (last accessed 12 September 2019).

⁴¹⁴ International Covenant on Economic, Social and Cultural Rights, Art. 12(1), Dec. 16, 1966, 993 U.N.T.S. 3 (hereinafter, “ICESCR”).

⁴¹⁵ UN GAOR, 3d Sess, Supp No 13, UN Doc A/810 (1948).

⁴¹⁶ U.N. Human Rights Office of the High Commissioner (06 May 2016), *Analytical Study on the Relationship Between Climate Change and the Human Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health at 45*, UN Doc. A/HRC/32/23.

⁴¹⁷ *Joint Summary Amicus*, *supra* note 50, p. 23.

⁴¹⁸ Exhibit “PPPPPP” to “PPPPPP-11,” *supra* note 375, pp. 10-11.

8.69. Further, the aforementioned impacts were shown in the testimonies of the community witnesses and were affirmed by petitioners' expert witnesses -- particularly Drs. Jonathan Moses Jadloc,⁴¹⁹ Victorio B. Molina,⁴²⁰ and Glenn Paraso⁴²¹ -- and the Honorable Commission's expert resource persons.

8.70. As regards the impact on mental health, it was evident in the testimonies of most community witnesses, specifically Ms. Marinel Ubaldo when her father got depressed and suicidal⁴²² and she was traumatized even after five years from the happening of Haiyan—

Five (5) years after, my nerves still get the best of me whenever I hear the crash of ocean waves. I get anxious and restless when it rains because I fear that another Haiyan will happen again. It took me three years before I was able to go to the ocean again. It's sad because the ocean was our childhood friend. We grew up together. It has always provided everything we need. But now, whenever we look at the ocean, there's always fear because we will never forget how it took everything away from us.⁴²³

8.71. In the Philippines, the WHO has identified several health issues linked to climate change, such as risks from infectious and vector-borne diseases, ambient and indoor air pollution, sea-level rise, heat-related deaths, and under-nutrition.⁴²⁴ Again, these were affirmed by petitioners' expert witnesses -- Drs. Jadloc,⁴²⁵ Molina,⁴²⁶ and Paraso⁴²⁷ -- in their respective testimonies.

8.72. Globally, the WHO has projected that climate change will cause approximately 250,000 additional deaths per year from 2030 to 2050 due to increased malnutrition, malaria, dengue, diarrhea, and heat stress alone, while a study commissioned by the Climate Vulnerable Forum placed the figure at

⁴¹⁹ Exhibit "WWWWW" to "WWWWW-5," *Statement of Dr. Jonathan Moses C. Jadloc*, dated 08 August 2018; see Testimony of Dr. Jonathan Moses C. Jadloc, TSN 29-30 August 2018, pp. 240-260, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-August-29-to-30-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴²⁰ Testimony of Dr. Victorio B. Molina, TSN 27-28 March 2018, pp. 169-179, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-March-27-to-28-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴²¹ Exhibit "JJJJJJJJ" to "JJJJJJJJ-20," *Statement of Dr. Glenn Paraso*, dated 06 December 2018; also see Testimony of Dr. Glenn Paraso, TSN dated 11-12 December 2018, pp. 60-82, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-December-11-to-12-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴²² Testimony of Ms. Marinel Ubaldo, TSN dated 27-28 September 2018, p. 8, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-September-27-to-28-New-York-United-States.pdf> (last accessed on 12 September 2019).

⁴²³ *Id.*

⁴²⁴ Lofts, K., *supra* note 375, p. 11, citing World Health Organization, *Quantitative Risk Assessment of the Effects of Climate Change on Selected Causes of Death, 2030s and 2050s* (Geneva: WHO, 2014), p. 13.

⁴²⁵ Exhibit "WWWWW" to "WWWWW-5" and TSN 29-30 August 2018, *supra* note 419.

⁴²⁶ Molina, V., *supra* note 420, pp. 169-179.

⁴²⁷ Exhibit "JJJJJJJJ" to "JJJJJJJJ-20" and TSN 11-12 December 2018, pp. 60-82, *supra* note 421.

an additional 700,000 deaths per year by 2030. The Climate Vulnerable Forum study found that climate change is currently responsible for 400,000 deaths per year.⁴²⁸

8.73. In financial terms, the *2017 Philippine Climate Change Assessment* notes that in the area of **human health** alone, “[t]he potential impacts of climate change are projected to be **USD 5 to 19 million by 2050** in terms of loss of public safety, increased vector- and water-borne diseases, and increased malnutrition from food shortages during extreme events.”⁴²⁹

5. The right to self-determination and development

8.74. The ICESCR and ICCPR affirm that “[a]ll peoples have the right of self-determination,” stating that “[b]y virtue of that right they freely determine their political status and freely pursue their economic, social, and cultural development.”⁴³⁰

8.75. The UN General Assembly affirmed this principle when it adopted the *1986 Declaration on the Right to Development*. The right to development is the right of every human person and all peoples to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized.⁴³¹ The *1986 Declaration on the Right to Development* also recognized that the right of peoples to self-determination includes “the exercise of their inalienable right to full sovereignty over all their natural wealth and resources.”⁴³²

8.76. As shown by some of the testimonies of the community witnesses, slow onset and extreme weather events are extremely disruptive to the lives and the natural wealth and resources of Filipinos.

⁴²⁸ Lofts, K., *supra* note 375, p. 11, citing DARA and the Climate Vulnerable Forum, *Climate Vulnerability Monitor 2nd Edition: A Guide to the Cold Calculus of a Hot Planet* (Madrid: Fundación DARA Internacional, 2012), p. 17.

⁴²⁹ *Ibid.*, citing Cruz, R., *et al.* (2017), *supra* note 357, p. 9.

⁴³⁰ Lofts, K., *supra* note 375, p. 6; International Covenant on Economic, Social and Cultural Rights (16 December 1966), Art. 1(1) 993 U.N.T.S. 3.; International Covenant on Civil and Political Rights, (16 December 1966), Art. 1(1), 9, 999 U.N.T.S. 171.

⁴³¹ International Covenant on Economic, Social and Cultural Rights (ICESCR), 16 December 1966, 993 UNTS 3 at Article 1(1); Universal Declaration of Human Rights (UDHR), GA Res 217(III), UN GAOR, 3d Sess, Supp No 13, UN Doc A/810 (1948) at Arts 1[UDHR]; International Covenant on Civil and Political Rights (ICCPR), 16 December 1966, 999 UNTS 171 at Art 2(1) [ICCPR]. UNGA Res 41/128, Declaration on the Right to Development, UN Doc A/RES/41/128 (4 December 1986) at Art 1(1) [Declaration on the Right to Development].

⁴³² UNGA Res 41/128, Declaration on the Right to Development, UN Doc A/RES/41/128 (4 December 1986) at Art 1(2) (hereinafter, “Declaration on the Right to Development”).

8.77. Children who lose their parents and older family members in severely destructive typhoons are thrust into the role of breadwinner for their younger brothers and sisters. This was the experience of Ms. Honeylyn Gonzales,⁴³³ who lost her parents and elder brothers at the age of 18 due to tropical storm *Sendong* (“Washi”). Being the remaining elder sibling, she was forced to “mature” quickly, forgoing her teenage years, and bore the responsibility of raising her siblings, both of whom were less than 10 years old at the time.⁴³⁴

8.78. Climate change impacts will make it more difficult for governments and people to pursue forms of development in which all human rights and fundamental freedoms can be fully realized.⁴³⁵ The economic and non-economic costs of climate change pose a grave threat to the realization of sustainable development and self-determination in the Philippines.

8.79. The impacts of climate change on a range of economic sectors and services, such as agriculture, water, fisheries, energy, transportation, and tourism, will diminish Filipinos’ ability to enjoy, contribute to, and participate fully in the economic, social, and cultural development of the country, and will make it more difficult for the government to promote the right to development and other economic, social, and cultural rights.⁴³⁶

8.80. In addition to damages to human lives and livelihoods, climate impacts are causing, and will continue to cause, major monetary damages. Countries like the Philippines experience the brunt of the impacts of climate change, which pose a serious barrier to sustainable development.⁴³⁷

8.81. The Philippines has already suffered major economic losses as a result of severe typhoons over the past decade, with Haiyan causing approximately \$2 billion in damages.⁴³⁸ As stated in the *Joint Summary of the Amicus Curiae*, the “Asian Development Bank estimates that, under a business-as-usual emissions trajectory, **the Philippines will suffer a mean loss of 2.2% of gross domestic product (GDP) by 2100 when market impacts only (mainly related to agriculture and coastal zones) are considered, a 5.7% loss if non-market impacts (mainly related to health**

⁴³³ Exhibit “IIIIIIII” to “IIIIIIII-4,” *supra* note 15; also see Testimony of Ms. Honeylyn Gonzales, TSN dated 11-12 December 2018, pp. 45-59, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-December-11-to-12-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴³⁴ *Id.*

⁴³⁵ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 27.

⁴³⁶ Lofts, K., *supra* note 375, p. 6.

⁴³⁷ Press Release, World Bank, *Philippines: Climate Change a Fundamental Threat to Development* (May 23, 2014), available at <https://www.worldbank.org/en/news/press-release/2014/05/23/climate-change-a-fundamental-threat-to-development-world-bank> (last accessed 06 September 2019).

⁴³⁸ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 27.

and ecosystems) are included, and a 6.7% loss if catastrophic risks are considered.”⁴³⁹

6. The right to food⁴⁴⁰

8.82. The right to food is enshrined in both the UDHR, as part of the right to an adequate standard of living, and the ICESCR.⁴⁴¹ Climate change is progressively threatening food security, as recognized by the OHCHR.⁴⁴² This has also been testified to by petitioners’ expert witnesses Dr. Mudjekeewis D. Santos,⁴⁴³ Dr. Vincent Hilomen,⁴⁴⁴ and Undersecretary Serrano,⁴⁴⁵ among others. In particular, Undersecretary Serrano described some of the impacts on food security in more categorical terms:

So what are the impacts on agricultural productivity? Let me start with your favorite crop, which is rice. For every one (1) degree Centigrade increase in night temperatures, you're going to experience from the biophysical of the rice plant, something like 10% yield reduction. . . .

Now, sea level rise which is a slow onset event Your Honors, it doesn't happen overnight. . . Now sea level rise will increase the salinity in our agricultural lands. And it will not just be those lands that will be in direct contact with the sea water because, as we know, the soil is particularly an effective conductor of water as well through capillary action. So salinity in rice, Your Honors, will bring us back to the pre-green revolution levels, meaning to say, if the average yield now for rice is more than four (4) metric tons, we're going to go back to something like one point five (1.5) metric tons per hectare. And most of our productive rice lands are very near sea level, and these are relatively flat areas which enjoy irrigation, etc. Many of them can actually yield seven (7) to nine (9) metric tons per hectare. With increase in salinity, Your Honors, all of that is going to be obliterated

⁴³⁹ Philippines National Disaster Risk Reduction and Management Council (2014), *Final Report on Effects of Typhoon “Yolanda” (Haiyan)*, cited *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 27.

⁴⁴⁰ Often referred to as the right to adequate food, the right to food is part of the right to an adequate standard of living under Article 11 of the ICESCR. It is also part of many optional protocols to international and regional treaties, as well as in Article 24 of the International Convention on the Right of the Child (one of the most widely ratified treaty globally).

⁴⁴¹ UDHR, Art. 25, ICESCR, Art. 11.

⁴⁴² Lofts, K., *supra* note 375, p. 6, citing: OHCHR (10 January 2008), *Report of the Special Rapporteur on the right to food*, Jean Ziegler, UN Doc A/HRC/7/5, para. 51; OHCHR (30 January 2008), *Report of the Special Rapporteur on the right to food: Mission to Bolivia*, UN Doc A/HRC/7/5/Add.2, paras. 11 and 15; A/HRC/31/52, p. 26.

⁴⁴³ Exhibit “FFFF,” *Abstract/Statement of Mudjekeewis D. Santos, PhD (Impacts of Climate Change to Philippine Fisheries)*; see Testimony of Dr. Mudjekeewis Santos, TSN dated 23-24 May 2018, pp. 103-130, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-May-23-to-24-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴⁴⁴ Testimony of Dr. Vincent Hilomen., TSN dated 23-24 May 2018, pp. 178-188, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-May-23-to-24-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴⁴⁵ Testimony of Segfredo Serrano, TSN dated 23-24 May 2018, pp. 133-147, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-May-23-to-24-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

and brought back to one point five (1.5) metric tons per hectare. And you don't need extensive calculation or thinking or embedding an algorithm to say that that definitely is a very important and decisive threat to food security.

Flooding will increase crop losses. And considering that rice is a water-loving crop – in fact, Your Honors, in an era of climate change and water scarcity, irrigated rice needs something like ten thousand liters of water to generate one (1) kilo of mill rice. However, while we are breeding varieties of rice that can survive under flooded conditions for a prolonged period of time, we're not yet there, because the floods that we are experiencing are not only getting longer, they're getting more violent in terms of water flows and water velocity.⁴⁴⁶

8.83. Further, the IPCC has stated that **“all aspects of food security are potentially affected by climate change, including food access, utilization, and price stability.”**⁴⁴⁷ According to the IPCC, changes in temperature and precipitation have negatively affected terrestrial crop production (wheat and maize),⁴⁴⁸ as well as fishery productivity, due to fish migrating to cooler and deeper waters in response to warming ocean temperatures.⁴⁴⁹ Expert witnesses Drs. Laura David, Maria Lourdes San Diego-McGlone, and Porfirio Aliño, all professors at the Marine Science Institute of the University of the Philippines-Diliman, discussed this at length in their presentation before the Honorable Commission.⁴⁵⁰

8.84. These impacts will become more widespread and severe in the coming years, but even in the near term the impacts on global food security could be devastating. For example, the IPCC projects that 10% of the impacts on food security under a 2°C warming scenario would yield losses of more than 25% in the period 2030-2049, with even greater losses expected after 2050.⁴⁵¹ **For low-latitude countries like the Philippines, there is high confidence that crop production will be “consistently and negatively” affected by climate change in a 2°C warming scenario and fishery production will also decline.**⁴⁵²

⁴⁴⁶ *Id.* pp. 137-138.

⁴⁴⁷ Intergovernmental Panel on Climate Change (IPCC) Working Group II, *Climate Change 2014: Impacts, Adaptation and Vulnerability*, Summary for Policymakers p. 20, 6-8.

⁴⁴⁸ Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2014: Impacts, Adaptation and Vulnerability*, Contribution of the Working Group II to the Fifth Assessment Report of the IPCC, 713 (Christopher Field et al. [2014]) (hereinafter, “IPCC AR5 WGII”), p. 491, cited in *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 25.

⁴⁴⁹ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 25, citing IPCC AR5 WGII, p. 493.

⁴⁵⁰ Exhibit “BB” to “BB-3,” *Joint Statement of Maria Lourdes San Diego-McGlone, PhD Chemical Oceanography; Laura David, PhD Physical Oceanography; and Porfirio Aliño, PhD Marine Chemical Ecology*; see Testimonies of Drs. David, McGlone, and Aliño, TSN 27-28 March 2018, pp. 129-156, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-March-27-to-28-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴⁵¹ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 25, citing IPCC AR5 WGII, p. 488, 503-504,

⁴⁵² *Ibid.*

8.85. In the Philippines, as shown, the agricultural sector is strongly affected by climate change. The increasing frequency and intensity of extreme weather events, such as tropical cyclones, are already having a detrimental effect on food security, with these impacts only expected to worsen over time— **some models predict that there will be a 4% (or an estimated 70,000 additional children) increase in malnourished children in the Philippines by 2050 due to climate change.**⁴⁵³

8.86. Crop yields in the Philippines have declined whenever temperatures have exceeded certain threshold values, which have been and will be increasingly exceeded because of climate change.⁴⁵⁴ The effect of rising temperatures and decreased rainfall on crop production could be devastating. **Rice yield could be reduced by 22% in a 2°C scenario according to one study,**⁴⁵⁵ **while another study concludes that climate change may reduce rice yield in the Philippines by up to 75% in 2100 as compared with 1990 levels.**⁴⁵⁶ Undersecretary Serrano quantified the losses in this way —

... Just to provide you also information on losses, Your Honors, when I started at the Department of Agriculture way back in the 1990s, which was the last decade of the last century, if we... if we lost thirty thousand (30,000) metric tons of palay [rice grains] to an extreme event like a typhoon, it's already big news and it's a big deal and triggers speculation "*Siguro kailangan mag-import na tayo.*" [There is a need to import rice.]. Do you know how much we're losing recently, Your Honors? **We're losing anywhere from three hundred (300) to six hundred thousand (600,000) metric tons of palay (rice grains).** If at just fifty percent (50%) milling rate, which is very low, just to simplify the calculation, **we're losing anywhere from one hundred fifty (150) to three hundred thousand (300,000) metric tons of milled rice due to extreme events.** That is about how much we import on a regular basis, Your Honors.

x x x

... **On corn or maize, that's a one point seven percent (1.7%) percent reduction in yield for each day above thirty degrees Centigrade under drought conditions. That is pretty much substantial.**...

For livestock, although livestock production in this country is a little bit more controlled because *nakakulong iyan at saka ano* [they were caged and...], but the **feed**

⁴⁵³ Lofts, K., *supra* note 375, p. 6, citing Ortega, J. and Klauth, C. (2017), *Climate Landscape Analysis for Children in the Philippines* (Makati City: UNICEF Philippines).

⁴⁵⁴ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 25.

⁴⁵⁵ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 25, citing Escaño, C.R. and Buendia, L.V. (1994), *Climate Impact Assessment for Agriculture in the Philippines: Simulation of Rice Yield Under Climate Change Scenarios*.

⁴⁵⁶ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 25, citing Asian Development Bank (2009), *The Economics of Climate Change in Southeast Asia: A Regional Review*.

intake would be reduced by three (3) to five percent (5%) for every one (1) degree Centigrade above thirty (30) degrees Centigrade, Your Honors. When your animals will have reduced feed intake, you also have productivity losses. . . .⁴⁵⁷ (Emphasis supplied)

8.87. Petitioners' community witnesses from different parts of the country -- Ms. Rica Cahilig,⁴⁵⁸ Mr. Felix Pascua, Jr.,⁴⁵⁹ Ms. Lerissa Libao,⁴⁶⁰ Mr. Elicer Lauce,⁴⁶¹ Ms. Delia Tulagan,⁴⁶² Mr. Buucan Hangdaan,⁴⁶³ Ms. Dalia Nalliw,⁴⁶⁴ and Mr. William Mamanglo⁴⁶⁵ -- put a face to these devastating impacts and bore witness to crop losses and dwindling agricultural produce, illustrating the risk that the country will suffer a loss of farmers in line with a loss of farming incentives. As community witness, Mr. Pascua, Jr., shared—

That is why we, as farmers, we think impacts of climate change is grave. If truth is to be told, it is like no parent-farmer wants to pass on farming to his child. "My child, do not go into farming because you cannot get anything from that." It is saddening because if this will happen and we cannot save our earth, our environment... Let us try to imagine a country without farmers in the future. What are we going to eat? Especially us, Filipinos, our staple food is rice. . . We believe that the foundation of the right to life is having food, land, and decent housing. If you take these away from a person, you take away his right to live. I want to add this important

⁴⁵⁷ Serrano, S., *supra* note 445, pp. 137-140.

⁴⁵⁸ Exhibit "M" to "M-4," *supra* note 8; also see Testimony of Ms. Rica Cahilig, TSN dated 27-28 March 2018, pp. 13-28, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-March-27-to-28-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴⁵⁹ Exhibit "U" to "U-2," *supra* note 9; also see Testimony of Mr. Felix "Ka Jhun" Pascua, Jr., TSN dated 27-28 March 2018, pp. 72-82, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-March-27-to-28-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴⁶⁰ Exhibit "Z" to "Z-2," *Salaysay ni Bb. Lerissa Libao*, dated 17 March 2018; also see Testimony of Ms. Lerissa Libao, TSN dated 27-28 March 2018, pp. 108-111 and 116, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-March-27-to-28-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴⁶¹ Exhibit "BBBBB" to "BBBBB-3," *Salaysay ni Gg. Elicer G. Lauce*, dated 15 August 2018; also see Testimony of Mr. Elicer G. Lauce, TSN dated 29-30 August 2018, pp. 92-96 and 98-122, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-August-29-to-30-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴⁶² Exhibit "CCCCC" to "CCCCC-2," *Salaysay ni Gng. Delia A. Tulagan* dated 15 August 2018; also see Testimony of Ms. Delia Tulagan, TSN dated 29-30 August 2018, pp. 96-97 and 98-122, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-August-29-to-30-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴⁶³ Exhibit "OOOOO" to "OOOOO-1," *Salaysay ni Gg. Buucan Hangdaan*, dated 14 August 2018; also see Testimony of Mr. Buucan Hangdaan, TSN dated 29-30 August 2018, pp. 177-182, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-August-29-to-30-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴⁶⁴ Exhibit "PPPPP" to "PPPPP-2," *Salaysay ni Bb. Dalia Nalliw*, dated 14 August 2018; also see Testimony of Ms. Dalia Nalliw, TSN dated 29-30 August 2018, pp. 182-184, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-August-29-to-30-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴⁶⁵ Exhibit "QQQQQ" to "QQQQQ-1," *Statement of William B. Mamanglo*; also see Testimony of Mr. William Mamanglo, TSN dated 29-30 August 2018, pp. 185-217, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-August-29-to-30-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

thing, that it is our human right as farmers to have secure food, secure land to farm, and house to sleep. But because of the current climate change, we lose food to eat, land to till, and house to live in. . . .⁴⁶⁶ (Emphasis supplied)

8.88. Climate change may also affect food production in the Philippines through increases in the incidence and outbreaks of pests and diseases, increases in extreme weather events and flooding, and declines in fishery productivity.⁴⁶⁷

7. The right to water and sanitation⁴⁶⁸

8.89. The UN General Assembly has recognized that all persons have a “right to safe and clean drinking water and sanitation that is essential for the full enjoyment of life and all human rights.”⁴⁶⁹ According to IPCC projections, climate change will significantly reduce surface water and groundwater resources, as well as increase the frequency of droughts in presently dry areas.⁴⁷⁰

8.90. Climate change affects the right to water due to the decreased availability of freshwater through reductions in precipitation, increased evapotranspiration resulting from higher temperatures, sea level rise, which will contribute to saltwater intrusion into freshwater aquifers, and more intense storms, rainfall, and flooding, which can lead to contamination of freshwater sources.⁴⁷¹ This can lead to competition over water supplies for human consumption, agriculture, and other uses.

8.91. Freshwater scarcity, flooding, and sea-level rise can also adversely affect sanitation systems (e.g., when wastewater treatment plants flood or when sufficient water is not available for hygienic needs). In addition, extreme weather events often affect water and sanitation

⁴⁶⁶ Pascua Jr., F., TSN dated 27-28 March 2018., p. 79, *supra* note 459.

⁴⁶⁷ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 25.

⁴⁶⁸ Several national constitutions protect the right to water or outline the general responsibility of the State to ensure access to safe drinking water and sanitation for all. Internationally, the human right to safe drinking water was not recognized by the UN General Assembly and the Human Rights Council as part of binding international law in 2010. The human right to sanitation was explicitly recognized as a distinct right by the UN General Assembly in 2015. ICESCR, Art 11; CEDAW, Art 14(2)(h); and CRPD, Art 28(2)(a). See also CRC, Art 24(2)(c). 48; HRC, *Report of the Independent Expert on the Issue of Human Rights Obligations related to Access to Safe Drinking Water and Sanitation*, Catarina de Albuquerque, UN Doc A/HRC/12/24 (1 July 2009); GA Res 64/292, *The Human Right to Water and Sanitation*, UN Doc A/RES/64/292 (28 July 2010). HRC Res 15/9, *Human Rights and Access to Safe Drinking Water and Sanitation*, UN Doc A/HRC/RES/15/9 (6 October 2010); CESCR, *Statement on the Right to Sanitation*, UN Doc E/C.12/2010/1 (19 November 2010), para. 8; and CESCR, General Comment No 15, UN Doc E/C.12/2002/11 (26 November 2002), para. 1 (hereinafter, “General Comment No 15”).

⁴⁶⁹ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 24, UN General Assembly Res. 64/292 (29 July 2010), *The Human Right to Water and Sanitation*, para. 1.

⁴⁷⁰ IPCC AR5 WGIII, *Chapter 3: Freshwater Resources*, p. 232, available at https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-Chap3_FINAL.pdf (last accessed on 12 September 2019).

⁴⁷¹ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 24.

infrastructure and flooding can leave behind contaminated water, contributing to the spread of waterborne diseases.⁴⁷²

8.92. In the Philippines, flooding and intense rainfall can damage and contaminate water sources, increasing the prevalence of illness such as diarrhea, which is one of the primary causes of death for children under five.⁴⁷³ On the other hand, the higher incidence of drought is also a major concern for the Philippines, where previous droughts have caused massive crop failures and water shortages.⁴⁷⁴

8. The right to adequate housing⁴⁷⁵

8.93. The UDHR and the ICESCR recognize that all persons have a right to adequate housing, as part of the right to an adequate standard of living.⁴⁷⁶ The right to adequate housing entails the right to be free from arbitrary interference with one's home, privacy and family, and the right to choose one's residence, to determine where to live, and to have freedom of movement.⁴⁷⁷ Rising sea-levels, flooding, forest fires, extreme weather events, and other climate-related harms will arbitrarily deprive many individuals of their housing and other property.⁴⁷⁸

8.94. Living testaments to this hardship are most of the community witnesses -- including Ms. Cabe,⁴⁷⁹ Ms. Golong,⁴⁸⁰ Ms. Gonzales,⁴⁸¹ Ms.

⁴⁷² *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 24.

⁴⁷³ Lofts, K., *supra* note 375, p. 8, citing Javier Bornstein Ortega & Christine Klauth, *Climate Landscape Analysis for Children in the Philippines* (Makati City: UNICEF Philippines, 2017), p. 20.

⁴⁷⁴ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 24, citing World Bank (2013), *Getting a Grip on Climate Change in the Philippines*, p. 24.

⁴⁷⁵ The right to housing is part of the right to an adequate standard of living, see Article 11(1) of the ICESCR. See also UDHR at Art 25(1); CERD at Art 5(e)(iii); CEDAW at Art 14(2); CRC at Art 27(3); CRPD at Arts 9(1)(a), 28(1) and (2)(d).

⁴⁷⁶ UDHR Art. 25; ICESCR Art. 11(1).

⁴⁷⁷ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 26, citing UN Human Rights Office of the High Commissioner (2009), *The Right to Adequate Housing*, Fact Sheet No. 21/Rev.1, p. 3.

⁴⁷⁸ See example cited in the *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 26, International Organization for Migration (2009), *Migration, Environment and Climate Change: Assessing The Evidence*, p. 355.

⁴⁷⁹ Exhibit "AAAAAAA" to "AAAAAAA-6," *Salaysay ni Bb. Veronica V. Cabe*, dated 22 October 2018; also see Cabe, T., *supra* note 2, pp. 108-118.

⁴⁸⁰ Exhibit "LLLL" to "LLLL-4," *supra* note 11; also see Testimony of Arthur S. Golong, TSN 29-30 August 2018, pp. 5-39, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-August-29-to-30-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴⁸¹ Gonzales, H., *supra* note 15 and 433, pp. 45-59.

Bahian,⁴⁸² Ms. Piquero-Tan,⁴⁸³ Ms. Ubaldo,⁴⁸⁴ Ms. Cocadiz,⁴⁸⁵ and Ms. Bacason⁴⁸⁶ -- who testified and shared their heartbreaking ordeals on either relocating almost every time typhoon hits their place, having to live in tents for months, or migrating abroad for safety.

8.95. Without adaptation, the IPCC projects with high confidence that “hundreds of millions of people will be affected by coastal flooding and will be displaced due to land loss by year 2100.”⁴⁸⁷ Drought and desertification could lead to the displacement of millions more people.⁴⁸⁸

8.96. Impacts on the right to housing may also be linked to climate-induced migration, especially due to declining agricultural yields, the destruction of ecosystems, and resource shortages caused by climate change.⁴⁸⁹ For instance, the OHCHR notes that “[t]he erosion of livelihoods, partly caused by climate change, is a main ‘push’ factor for increasing rural to urban migration,” thereby causing many to “move to urban slums and informal settlements where they are often forced to build shelters in hazardous areas.”⁴⁹⁰

8.97. This is particularly relevant to the Philippines, where many poor people in urban areas lack access to infrastructure and basic services and live in settlements in low-lying coastal areas in the cities. The people’s right to adequate housing is constantly being jeopardized by climate-related impacts such as flash flooding, landslides, sea-level rise, and storm surges.⁴⁹¹ Specifically, petitioners’ community witnesses from urban poor areas in Marikina and Rizal -- Mr. Noli Abinales, Mr. Pablo Taon III, Ms. Francia

⁴⁸² Exhibit “CCCCCCCC” to “CCCCCCCC-3,” *supra* note 15; also see Testimony of Ms. Amalia Bahian, TSN 11-12 December 2018, pp. 7-15, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-December-11-to-12-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴⁸³ Exhibit “QQQQQQQQ” to “QQQQQQQQ-7,” *Statement of Ms. Monica Piquero Tan*, dated 03 December 2018; also see Testimony of Ms. Monica Piquero-Tan, TSN 11-12 December 2018, pp. 18-27, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-December-11-to-12-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁴⁸⁴ Exhibit “MMMMMM” to “MMMMMM-5,” *supra* note 400; also see Ubaldo, S., TSN 27-28 September 2018, *supra* note 422, pp. 6-8.

⁴⁸⁵ Exhibit “NNNNNN” to “NNNNNN-5,” *Statement of Cristina C. Cocadiz*, dated 19 September 2018; also see Testimony of Ms. Cristina Cocadiz, TSN 27-28 September 2018, pp. 10-25, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-September-27-to-28-New-York-United-States.pdf> (last accessed on 12 September 2019).

⁴⁸⁶ Bacason, M., *supra* note 401; also see Testimony of Ms. Marielle Trixie J. Bacason, TSN 6-7 November 2018, pp. 96-108, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-November-6-to-7-London-United-Kingdom.pdf> (last accessed on 12 September 2019).

⁴⁸⁷ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 26, IPCC AR5 WGIII, p. 364.

⁴⁸⁸ *Ibid.*

⁴⁸⁹ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 26, IPCC AR5 WGIII, p. 364.

⁴⁹⁰ Lofts, K., *supra* note 375, p. 8, citing A/HRC/10/61, para. 36.

⁴⁹¹ *Ibid.*, p. 9.

Encinas,⁴⁹² Mr. Isagani Molina, and Mr. RJ de Ramos⁴⁹³ -- who testified to the pain caused by having one's house repeatedly flooded and having to be relocated after a typhoon has hit their homes— trauma which they are still suffering from after so many years.

8.98. In the Philippines, severe storms and flooding events linked to climate change have already displaced millions of people from their homes. Super typhoon Haiyan displaced more than four million people and damaged or destroyed more than one million homes.⁴⁹⁴

8.99. Displacement due to sea level rise is another major concern in the Philippines, due to the rapid increase in sea levels and the number of people who live on the coast.⁴⁹⁵ On the other hand, climate-related displacement from rural areas to cities may also increase due to decreased agricultural yields and inadequate job opportunities in the agricultural sector, putting additional pressure on depressed urban areas and mega cities.⁴⁹⁶

9. The right to work⁴⁹⁷ and social security⁴⁹⁸

8.100. Climate change deprives individuals, such as farmers and fisherfolks, of their livelihoods and, in general, disrupts the right to work by provoking significant economic transformations. For example, the bleaching of coral reefs and the diminution of wildlife stocks may cause the tourism industry to decline, leading to loss of employment.

8.101. Extreme weather events, which lead to the destruction of infrastructure, displacement, and damage to crop yields, will also have important economic consequences and thereby affect the right to work. In the context of the Philippines, the United Nations International Children's Emergency Fund (UNICEF) has noted that "[s]ubsistence livelihoods in rain-

⁴⁹² Exhibit "ZZZ," *Mga Salaysay nina Gg. Manuel A. Abinales, Gg. Pablo Taon III, at Gng. Francia M. Encinas*; also see Testimonies of Ms. Francia Encinas, Mr. RJ de Ramos, Mr. Isagani Molina, Mr. Pablo Taon III, and Mr. Manuel Abinales, TSN dated 23-24 May 2018, pp. 228-255.

⁴⁹³ Exhibit "YYY" to "YYY-2," *Mga Salaysay nina Gg. Isagani Molina at RJ de Ramos*; also see Testimonies of Ms. Francia Encinas, Mr. RJ de Ramos, Mr. Isagani Molina, Mr. Pablo Taon III, and Mr. Manuel Abinales, TSN 23-24 May 2018, pp. 228-255.

⁴⁹⁴ Angela Sherwood et al. (2014), *Resolving Post-Disaster Displacement: Insights from the Philippines After Typhoon Haiyan*, available at <https://www.brookings.edu/wp-content/uploads/2016/06/Resolving-PostDisasterDisplacementInsights-from-the-Philippines-after-Typhoon-Haiyan-June-2015.pdf> (last accessed 06 September 2019).

⁴⁹⁵ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 26.

⁴⁹⁶ *Ibid.* Also see *Effects of Typhoon Yolanda (Haiyan)*, p. 3, available at [http://www.ndrrmc.gov.ph/attachments/article/1329/Effects_of_Typhoon_YOLANDA_\(HAIYAN\)_SitRep_No_10_10NOV2013_0600H.pdf](http://www.ndrrmc.gov.ph/attachments/article/1329/Effects_of_Typhoon_YOLANDA_(HAIYAN)_SitRep_No_10_10NOV2013_0600H.pdf) (last accessed on 12 September 2019).

⁴⁹⁷ ICESCR, Arts 6-8; ICCPR, Art 8(3)(a); CERD, Art 5(e)(i); CEDAW, Art 11(1)(a); CRC, Art 32; International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families, December 18, 1990, 2220 UNTS 3, Arts 11, 25, 26, 40, 52 and 54.

⁴⁹⁸ ICESCR at Art 9; CERD at Art 5(e)(iv), CEDAW at Art 11 and 14; CRC at Art 26.

fed agriculture are especially threatened by climate change and environmental degradation.”⁴⁹⁹

8.102. Climate-related hazards also have indirect effects on livelihoods by exacerbating other stressors. As noted by UNEP, climate change may contribute to “(i) increases in the prices of food, energy, and other critical commodities; (ii) political instability and largescale conflict; and (iii) individual and household-level disturbances.”⁵⁰⁰

8.103. In a country like the Philippines, where weather is becoming hotter and air-conditioning in some types of public transportation are non-existent, extreme weather events pose risks on the ability of workers to earn a living. Filipinos find it more difficult, if not impossible, to work safely in extreme temperatures. Such is the challenge that community witness Mr. Ernesto Cruz,⁵⁰¹ a jeepney driver in an urban area of Metro Manila, faces today.

8.104. As for the right to social security, which represents the right of everyone to live a life in human dignity in situations of social distress, climate change impacts exacerbate a wide range of pre-existing social issues.⁵⁰²

10. The right to equality and non-discrimination

8.105. The right to equality and non-discrimination is also a tenet of international human rights law protected in the UDHR, ICCPR, and ICESCR, all of which recognize that the rights enumerated therein must be exercised and protected without discrimination of any kind.⁵⁰³

8.106. Recognizing that certain groups are more likely to endure violations of their human rights (e.g., women, children, and indigenous peoples), the UN has established more detailed frameworks for the protection of these groups – specifically: the *Convention on the Elimination of All Forms of Discrimination Against Woman* (CEDAW), the *Convention on the*

⁴⁹⁹ Lofts, K., *supra* note 375, p. 9, citing Javier Bornstein Ortega & Christine Klauth, Climate Landscape Analysis for Children in the Philippines (Makati City: UNICEF Philippines, 2017), p. 20.

⁵⁰⁰ *Ibid.*, citing UNEP, *Climate Change and Human Rights* (Nairobi: UNEP, 2015) p. 8.

⁵⁰¹ Exhibit “HH” to “HH-2,” *supra* note 14; also see Testimony of Mr. Ernesto Cruz, TSN dated 27-28 March 2018, pp. 157-166, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-March-27-to-28-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁵⁰² Lofts, K., *supra* note 375, p. 10.

⁵⁰³ UN GAOR, 3d Sess, Supp No 13, UN Doc A/810 (1948) at Arts 1 and 2 (hereinafter, “UDHR”); International Covenant on Civil and Political Rights (ICCPR), 16 December 1966, 999 UNTS 171 at Art 2(1) (hereinafter, “ICCPR”).

Rights of the Child (CRC), the *Convention on the Rights of Persons with Disabilities*, and the *UN Declaration on the Rights of Indigenous Peoples*.⁵⁰⁴

8.107. The OHCHR states that the negative impacts of climate change “will disproportionately affect individuals, groups and peoples in vulnerable situations, including women, children, older persons, indigenous peoples, minorities, migrants, rural workers, persons with disabilities, the poor, and those living in vulnerable areas (e.g., small islands, riparian and low-lying coastal zones, arid regions, and the poles).”⁵⁰⁵

8.108. The IPCC has similarly found that “people who are socially, economically, politically, institutionally or otherwise marginalized are especially vulnerable to climate change.”⁵⁰⁶ The vulnerability of these groups results from their greater exposure to climate change impacts as well as their limited capacity to adapt to those impacts. As stated by the U.N. Special Rapporteur’s on the *Right to a Healthy Environment* in his *2019 Safe Climate Report*: “The worst impacts afflict those who have contributed least to the problem and who have the fewest resources to adapt to, or cope with, the impacts.”⁵⁰⁷

8.109. Under international human rights law, the concept of equality is implemented through the prohibition of certain types of discrimination. Climate change may infringe on the right to equality and non-discrimination because the failure to reduce carbon emissions and to adopt adaptation measures will have disproportionate impacts on communities and individuals from particular vulnerable groups.⁵⁰⁸

8.110. Petitioners’ community witness, super typhoon Haiyan survivor and transgender Ms. Golong,⁵⁰⁹ shared how livelihood programs followed a binary gender system after the typhoon— with significant emphasis placed on traditional male and female gender roles in assigning work.

11. The right to culture

8.111. Climate change impacts the enjoyment of the right to culture, such as traditional livelihoods and practice of ancestral traditions, particularly

⁵⁰⁴ Convention on the Elimination of All Forms of Discrimination Against Women (hereinafter, “CEDAW”); Convention on the Rights of the Child, 20 November 1989, 1577 UNTS 3 [hereinafter CRC]; Convention on the Rights of Persons with Disabilities, 13 December 2006, 2515 UNTS 3 [hereinafter CRPD]; and UNGA, UN Declaration on the Rights of Indigenous Peoples, 2 October 2007, UN Doc A/RES/61/295 (hereinafter, “UNDRIP”).

⁵⁰⁵ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 26, citing UN Human Rights Office of the High Commissioner (2016), *The Rights of those Disproportionately Impacted by Climate Change*, p. 1.

⁵⁰⁶ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 26, citing IPCC AR5 WGII, p. 6.

⁵⁰⁷ UN Safe Climate Report, *supra* note 408, p. 46.

⁵⁰⁸ Lofts, K., *supra* note 375, pp. 5-6.

⁵⁰⁹ Golong, A., *supra* note 480, pp. 5-39.

for Indigenous Peoples. As traditional livelihoods become less sustainable, traditional culture will be lost. Climate change-related displacement and migration will also threaten the right to culture, since communities may be split apart and forced to relocate; thus, disturbing cultural practices and breaking social cohesion.⁵¹⁰

8.111.1. Notably, displaced people are particularly vulnerable to certain human rights abuses. Climate change will cause these numbers to go up; therefore, those abuses will go up as well.⁵¹¹

8.112. Community witnesses Ms. Cahilig⁵¹² of the Aeta-Ambala tribe and Mr. Buucan Hangdaan,⁵¹³ Ms. Dalia Nalliw,⁵¹⁴ and Mr. William Mamanglo⁵¹⁵ of Ifugao showed us the grim reality on how climate change affected cultural rights for Indigenous Peoples. For Ms. Cahilig, she described how the tradition of “*pagdadanso*”⁵¹⁶ has been almost entirely abandoned due to extreme heat and the depletion of food and water sources from the mountains and rivers where they get their food. Mr. Hangdaan, Ms. Nalliw, and Mr. Mamanglo, Indigenous Peoples of the Cordillera Administrative Region, have expressed the same concerns.

8.113. These community witnesses emphasized on the importance of these cultural practices, which now threatened with extinction. The loss of natural resources due to climate change is a loss of their heritage⁵¹⁷— a loss that will affect their children and the next generations to come.

12. The rights of children and future generations

8.114. Children and future generations will be disproportionately affected by climate change as harmful impacts become more severe over time.⁵¹⁸ Given the nature of the climate threat, children and their caregivers

⁵¹⁰ Lofts, K., *supra* note 375, p. 12, citing UNEP, *Climate Change and Human Rights* (Nairobi: UNEP, 2015), p. 8.

⁵¹¹ Testimony of John Knox, TSN dated 27-28 September 2018, p. 107, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-September-27-to-28-New-York-United-States.pdf> (last accessed on 12 September 2019).

⁵¹² Cahilig, R. *supra* note 8 and TSN 27-28 March 2018, pp. 13-28, *supra* note 458.

⁵¹³ Hangdaan, B., *supra* note 463.

⁵¹⁴ Nalliw, D., *supra* note 464.

⁵¹⁵ Mamanglo, W., *supra* note 465.

⁵¹⁶ This involves native Aeta-Ambala going to the mountains, bringing with them salt and rice grains in the mountain, and then staying there for one to two weeks. The nature is meant to provide all the food they need and in normal conditions, before extreme heat hit their area, they would find it in abundance.

⁵¹⁷ Since these Indigenous Peoples mostly rely on them not only as sources of food, but also part and parcel of their practice of ancestral traditions.

⁵¹⁸ United Nations General Assembly, *Analytical study on the relationship between climate change and the full and effective enjoyment of the rights of the child*, Report of the Office of the United Nations High Commissioner for Human Rights, A/HRC/35/13 (May 4, 2017). See also Center for International Environmental Law and Global Initiative for Economic, Social and Cultural Rights, *States' Obligations Under the Convention on the Rights of the Child*, in the context of climate change (Jan 2018), available at

have no meaningful way of protecting themselves from the dangerous situation in which States and Carbon Majors have placed them.⁵¹⁹

8.115. The UN Human Rights Council observed that “children [...] are among the groups most vulnerable to the adverse impacts of climate change, which may seriously affect their enjoyment of the highest attainable standard of physical and mental health, access to education, adequate food, adequate housing, safe drinking water and sanitation.”⁵²⁰

8.116. As noted in the *Our Children’s Trust Amicus Brief*: “the current generation of children are developing into adults as States fail to address the causes of climate change; they live their lives in a time of increasing climate instability under threat of increasingly frequent and severe extreme weather events, increasing ocean acidification, loss of coastline and even entire geographic regions to rising sea levels, rising rates of epidemiological disease, dislocation, and social disruption.”⁵²¹

8.117. Indeed, children are particularly vulnerable to the impacts of climate change, due primarily to three interconnected factors. *Firstly*, childhood represents a unique period of rapid physical and mental development, particularly between birth and the age of five. During that time, children’s bodies are most vulnerable to the conditions of climate change and environmental risks.⁵²² As such, children “experience distinct and disproportionate harm from climate-induced changes in their environment, including impacts with potentially lifelong consequences,” as stated in the *UNICEF Amicus Brief*.⁵²³

8.118. *Secondly*, children make up one of the largest groups affected by climate change, as many of the countries identified as the most vulnerable to the impacts of climate change are also those in which children account for a disproportionately large share of the overall population.⁵²⁴ While all children will ultimately suffer from the risks of climate-induced harm, not all children are affected equally. Areas most exposed to the impacts of climate change frequently overlap with areas of high poverty, exacerbating inequality and further undermining the ability of poor children to cope and take advantage of opportunities⁵²⁵ for their development.

<http://www.ciel.org/wp-content/uploads/2018/01/HRTBs-synthesis-report-CRC.pdf> (providing a recent summary of authoritative statements), (last accessed 06 September 2019), cited in *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 28.

⁵¹⁹ *Joint Amicus of the Amicus Curiae*, *supra* note 50, p. 10.

⁵²⁰ UN General Assembly, Human Rights Council Res. 35/20 (19 June 2017), *Human Rights and Climate Change*, para. 15.

⁵²¹ *Ibid.*, p. 12.

⁵²² Testimony of Joni Pengram, TSN dated 6-7 November 2018, p. 4, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-November-6-to-7-London-United-Kingdom.pdf> (last accessed on 12 September 2019).

⁵²³ *Amicus Curiae Brief submitted by UNICEF*, *supra* note 45.

⁵²⁴ Pengram. J. *supra* note 522.

⁵²⁵ *Ibid.*

8.119. Filipino children's right to health, life, adequate standard of living, protection from violence and conflict, and education have all been impacted due to climate change, and will continue to do so. In the Philippines, children living in poverty, children living in rural locations and informal urban settlements,⁵²⁶ children with disabilities, and children from indigenous communities⁵²⁷ already experience significant gaps in their access to services and in meeting key development targets across a range of key outcome areas. Climate shocks and stress will increase this inequity.

8.120. *Thirdly and finally*, despite being least responsible for the causes of climate change, it is children and future generations that will bear the heaviest burden of our inadequate action to tackle climate change, since they will live longer, and face more profound, widespread, and recurrent crises as the impacts of climate change escalate over time.⁵²⁸

8.121. The Philippines illustrates the extent of child vulnerability to climate change: **the country is consistently ranked⁵²⁹ among the top five countries most vulnerable to climate change impacts and has a large youth population that is expected to grow in the coming years.**⁵³⁰ Expert witnesses Drs. Rosa Perez and May Celine Vicente⁵³¹ extensively discussed children's vulnerabilities to climate change and disaster impacts in the Philippines. Dr. Vicente concluded and recommended:

... Children are central to climate change and human security concerns. ... Climate change impacts broader sustainable agenda especially for poverty reduction and Millennium Development Goals now named as Sustainable Development Goals and expanded strategies responsive to children's needs are necessary especially towards better adaptation and resilience. Climate change would form major constraints to meeting MDGs targets especially concerning children. Children are also considered agents for social change.

A human rights based approach is needed to include children's issues. It is important to integrate children's agenda to governmental processes. Adaptation must

⁵²⁶ See Testimony of RJ De Ramos, TSN 23-24 May 2018, pp. 232-233, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-May-23-to-24-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁵²⁷ See Exhibit "M" to "M-4," *supra* note 8; also see Cahilig, R., TSN dated 27-28 March 2018, pp. 13-28, *supra* note 458.

⁵²⁸ UNICEF *Amicus*, *supra* note 45, *Children and Climate Change: an Overview*, p. 2.

⁵²⁹ *Ibid.*, citing Germanwatch, Global Climate Risk Index 2018 for the period 1997-2016.

⁵³⁰ UNICEF *Amicus*, *supra* note 45, *Children and Climate Change: an Overview*, p. 2.

⁵³¹ Exhibit "MMMM," *Abstract of the study entitled 'Country Scoping Studies to Build Evidence on Children's Vulnerabilities to Climate Change and Disaster Impacts: Philippines' Report Submitted to the UNICEF by the Manila Observatory of Rosa Perez, PhD and May Celine Vicente, PhD*, dated 20 August 2018; Exhibit "PPPP" to "PPPP-26," *Printed PowerPoint Presentation of Rosa Perez, PhD and May Celine Vicente, PhD, entitled "Country Scoping Studies to Build Evidence on Children's Vulnerabilities to Climate Change and Disaster Impacts: Philippines"*; also see Testimonies of Drs. Rosa Perez and May Celine Vicente, TSN dated 29-30 August 2018, pp. 41-51.

incorporate children's perspectives. Opportunities for country-shared learnings and for local actions involving children and youth are required. Climate change definitely impacts on children especially because of their sensitivity in the form of child vulnerability as evidenced by impact chains. Partnerships are keys to success.

The promotion of the roles and contribution of children and youth are necessary but are challenges to climate change and disaster risk. Greater human security on a long-term basis is important to consider especially since children growing up become also future policy and decision makers. There is a lack of accurate age-specific and spatially referenced local data on vulnerabilities of children and the sensitivity of hazard exposures and vulnerability variables need to be researched and established so that targets and strategies in space and time may be addressed.⁵³²

8.122. In sum, climate change directly and indirectly threatens the full and effective enjoyment of a range of human rights. Climate change exacerbates underlying inequalities and injustices. The negative impacts of climate change are disproportionately borne by persons and communities already in disadvantageous situations with the least ability to cope, like the petitioners herein and the Filipinos in general, who have historically contributed the least to GHGs.⁵³³

8.123. Thus, expert witness Undersecretary Serrano calls for a positive action, without further delay, to avert this climate crisis. As he eloquently puts it:

Your Honors, there are things that happen in the short term for climate change, like extreme events. They're sexy to the press. They are sexy to the press, they are sexy for politicians. But there are things on climate change that happens way beyond the political life of our political leaders or even our tenures in government. And I refer to slow-onset events. **We cannot wait. We have to use the insights from science, particularly climate science and the biological sciences, to be able for us to evaluate ahead and prepare for slow-onset events. We cannot wait to generate our own data here. We cannot wait for those researches to finish so that we have an unequivocal conclusion** We all know that from the experience of others who have their own string of data. **We don't need to reinvent and wait because, whether we like it or not, we have to do our preparations and our adaptation to climate change now. So we have to make those decisions even if we are not exhaustive in the data**

⁵³² Vicente, M.C., TSN dated 29-30 August 2018, pp. 48-51, *supra* note 531.

⁵³³ Schachter, B., *supra* note 394.

Your Honors, climate change has prejudiced most definitely against agriculture and fisheries and its population. There is prejudice to the poor. In fact, Your Honors, I should say that in the face of the recent extreme events, extreme prejudice. Many of our fellow citizens have been terminated by climate change impacts with extreme prejudice.⁵³⁴

8.124. To reiterate, understanding human rights through the lens of human dignity underscores the interdependence and indivisibility of all human rights, which is how they are experienced in individual daily lives. This was manifested in all the testimonies of the community witnesses who told their stories of injustices in the context of human rights and climate change.

C

RESPONDENT CARBON
MAJORS SIGNIFICANTLY
CONTRIBUTE TO CLIMATE
CHANGE.

8.125. As already discussed, expert witness Mr. Heede, showed that approximately **two-thirds of all carbon dioxide and methane emissions from fossil fuel and cement sources since the Industrial Revolution can be traced to the production activities of the world’s ninety (90) largest oil, gas, coal, and cement entities.** Of the 90 entities, 50 investor-owned companies named were impleaded herein as respondents in the *Petition*, and 47 investor-owned companies were notified of the *Consolidated Reply*.⁵³⁵

8.125.1. The Carbon Majors publications are part of a research-based project to detail and trace the quantities of carbon dioxide and methane from fossil fuel use and cement manufacturing attributable to specific entities that produced and marketed the carbon fuels and cement worldwide.⁵³⁶

8.125.2. Mr. Heede took a historical approach and quantified and traced 65.7% of all fossil fuel and cement emissions since 1751 to the production activities of ninety (90) Carbon Majors from 1854 to 2015. Half of all fossil fuel and cement emissions -- the so-called “industrial sources” of man-made CO₂ and methane (excluding land use and deforestation

⁵³⁴ Serrano, S., TSN dated 23-24 May 2018, *supra* note 445, p. 144.

⁵³⁵ See Exhibit “VVVV” to “VVVV-14,” p. 3 (Abstract); Also see Exhibit “QQQQ” to “QQQQ-11,” *Profile and Statement of Richard Heede*, dated 07 August 2018, p. 4. Currently, the number of respondents were reduced to 47 due to acquisitions and mergers (see *supra* note 17).

⁵³⁶ Exhibit “QQQQ” to “QQQQ-11,” *Profile and Statement of Richard Heede*, dated 07 August 2018, p. 3.

sources) -- have been emitted since 1989.⁵³⁷ This date is notable because it is after the First World Climate Conference in 1979 and the Toronto Conference on the Changing Atmosphere in 1988, which set into place the global political process on climate change.⁵³⁸

8.125.3. The 90 “Carbon Majors” included 50 investor-owned producers of oil, gas, coal, and cement, such as Chevron, Peabody, BP, ExxonMobil, BHP Billiton, and Royal Dutch Shell; 31 state-owned entities producers, such as Saudi Aramco, Gazprom, Nigerian National Petroleum, and Coal India; and 9 former or current government-run coal producing entities, such as those in Poland, the former Soviet Union, Kazakhstan, North Korea, and China.⁵³⁹

8.125.4. **The Carbon Majors publications were thoroughly vetted and peer-reviewed.**⁵⁴⁰ Mr. Heede’s analysis is based on company-data (SEC Form 10-Ks or Annual Reports), and a robust and peer-reviewed methodology. There is little room for disputing his results— except for relatively minor uncertainties and variables that mostly arise from lack of company-reported data (e.g., historical data on their own fuel use, flaring rates, vented CO₂, methane leakage rates, etc.).⁵⁴¹

8.125.5. In 2018, Mr. Heede updated⁵⁴² the “activity data” (annual production of fossil fuels and cement) to include 2015 and 2016.⁵⁴³ The key findings in this update are as follows:

a) Global emissions of carbon dioxide from all anthropogenic industrial sources (fossil fuel and cement) totals 1,545 billion metric tonnes CO₂ (GtCO₂) from 1751 to 2016;

b) The direct and product-related emissions of the **90 Carbon Major entities total**

⁵³⁷ *Ibid.*

⁵³⁸ Zillman, J., *A History of Climate Activities*, available at <https://public.wmo.int/en/bulletin/history-climate-activities> (last accessed on 12 September 2019).

⁵³⁹ *Ibid.*

⁵⁴⁰ Testimony of Mr. Richard Heede, TSN dated 27-28 August 2018, pp. 77-81, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-August-29-to-30-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁵⁴¹ Exhibit “QQQQ” to “QQQQ-11,” *supra* note 536, p. 4.

⁵⁴² See Exhibit “TTTT-A,” *Climate Accountability Institute, Press Release on Update of Carbon Majors Project (2018)*, pp. 1-2.

⁵⁴³ The update was based on data collected in company Form 10-Ks, Annual Reports, or standard industry sources in 2015-2016. The original Heede 2014 paper had activity data through 2010. No methodological changes were made, with the exception that Mr. Heede and his team adopted the IPCC global warming potential of methane to 28 times CO₂ (100-year time horizon) per IPCC’s Fifth Assessment Report (the previous value was 21xCO₂); Also see Exhibit “QQQQ” to “QQQQ-11,” *supra* note 536, p. 6.

1,023 GtCO₂, or **66% of all anthropogenic CO₂ from 1751 to 2016;**

c) The direct and product-related emissions of the **50⁵⁴⁴ investor-owned companies** total 368 GtCO₂e (**21.4%**), the **36 state-owned companies** total 357 GtCO₂e (**20.8%**), and to **government-run industries** total 408 GtCO₂e (**23.8%**); historical emissions not traced to the 90 Carbon Majors total 585 GtCO₂e (34%);

d) **The carbon fuels produced by the top twenty investor-owned fossil fuel companies contributed to 30% of all global industrial CO₂e from 1751 to 2016;**

e) **The carbon fuels produced by the investor-owned fossil fuel companies contributed to one-third of all global industrial CO₂e from 1751 to 2016; and**

f) Half of all industrial CO₂ emissions since 1751 have been emitted since 1989.⁵⁴⁵

8.126. According to Mr. Heede, respondents Royal Dutch Shell, Chevron, Statoil, Total, Hess, BP, and ConocoPhillips do estimate and submit to the carbon accounting non-profit organization Carbon Disclosure Project (“CDP”) their product-related emissions (respondent ExxonMobil only estimates emissions for products sold in New Zealand, USA, and Quebec).⁵⁴⁶ **Although each company’s methodology differs, they are roughly comparable to Mr. Heede’s internally consistent methodology.**⁵⁴⁷ CDP and CAI collaborated on a “guidance methodology report for calculating emissions from carbon production by fuel.”⁵⁴⁸

8.127. Significantly, though not *subsequent* to Mr. Heede’s results, respondent Shell estimated in a 1988 confidential report,⁵⁴⁹ which came to

⁵⁴⁴ See *supra* note 17.

⁵⁴⁵ Exhibit “TTTT-A,” *Climate Accountability Institute, Press Release on Update of Carbon Majors Project*, pp. 1-2.

⁵⁴⁶ Exhibit “QQQQ” to “QQQQ-11,” *supra* note 536, p. 5.

⁵⁴⁷ *Ibid.*, p. 5.

⁵⁴⁸ *Ibid.*, p. 5, citing Griffin, Paul, Richard Heede, & Ian van der Vlugt (2017), *The Carbon Majors Database: Methodology Report 2017*, CDP & CAI, March, p. 9.

⁵⁴⁹ *Ibid.*, p. 5, citing Shell Internationale Petroleum Maatschappij (1988) *The Greenhouse Effect*, Confidential Report, HSE 88-001, The Hague, p. 91, available at <https://www.documentcloud.org/documents/4411090-Document3.html#document/p32/a411303> (last accessed on 12 September 2019).

light in 2018,⁵⁵⁰ that, in 1984, its products contributed 3.9% of world fossil fuel emissions.⁵⁵¹ While respondent Shell may have used a different methodology (counting its refinery outputs, not equity production, and not deducting for non-energy uses), **this result not only roughly confirms but exceeds Mr. Heede's result for Shell in 1984: 2.1% of global fossil fuel emissions.**⁵⁵²

8.128. Respondent Chevron, on the other hand, disclosed to CDP that it emitted approximately 418.4 Mt of CO₂e during the reporting period 01 January 2014 to 31 December 2014. This is more than the total national emissions of most individual nation-states in 2012.⁵⁵³

8.129. Notably, Mr. Heede highlighted that **the largest component of emissions associated with the major carbon producers — variable, but around 90% — is from combustion of the carbon in their extracted oil, gas, and coal.**⁵⁵⁴

8.130. The **90 Carbon Major entities** contributed to **66% of all anthropogenic CO₂ from 1751 to 2016**; and the 50 investor-owned Carbon Majors are responsible for **21.4% of the of all anthropogenic CO₂ since 1751 through 2016.**⁵⁵⁵

8.131. Undoubtedly, given these numbers, the Honorable Commission can conclude that respondent Carbon Majors have significantly contributed to climate change through their direct and product-related emissions.

The proportional increase in atmospheric carbon dioxide, global mean surface temperature, and global sea-level from emissions traced to major carbon producers is quantifiable and substantial.

8.132. In 2017, a team of researchers and scientists from the UCS, CAI, and Oxford University, led by Dr. Brenda Ekwurzel, Senior Climate Scientist

⁵⁵⁰ *Ibid.*, p. 5, citing Mommers, Jelmer (16 March 2018) *Advocaten in actie tegen klimaatverandering: deze golf rechtszaken verandert de wereld* (*Lawyers in action against climate change: this wave of lawsuits is changing the world*), De Correspondent, available at <https://decorrespondent.nl/8048/advocaten-in-actie-tegen-klimaatverandering-deze-golf-rechtszaken-verandert-de-wereld/886962032-c29274df> (last accessed on 12 September 2019).

⁵⁵¹ Shell Internationale Petroleum Maatschappij (1988) *The Greenhouse Effect*, Confidential Report, HSE 88-001, The Hague, p. 91, available at <https://www.documentcloud.org/documents/4411090-Document3.html#document/p32/a411303> (last accessed on 06 September 2019).

⁵⁵² Exhibit “QQQQ” to “QQQQ-11,” *supra* note 536, p. 5.

⁵⁵³ *Joint Summary of the Amicus Curiae*, *supra* note 50, pp. 38-39.

⁵⁵⁴ Heede, R., *supra* note 536, p. 5.

⁵⁵⁵ See Exhibit “TTTT-A,” *Climate Accountability Institute, Press Release on Update of Carbon Majors Project*.

and Director of Climate Science of the Climate and Energy Program at the UCS, published a peer-reviewed study entitled, “*The Rise in Global Atmospheric CO₂, Surface Temperature, and Sea Level from Emissions Traced to Major Carbon Producers*.”⁵⁵⁶ This provides a robust answer to the following questions:

1. How much of the change in climate that the world is now experiencing is due to these emissions traced to the products of specific companies?
2. Can we measure the contributions of emissions by specific companies to the rise in global surface temperature and sea level?⁵⁵⁷

8.133. The study by *Dr. Ekwurzel et al.* (“UCS-led study”) confirms Mr. Heede’s findings that significant amount of emissions could be traced to respondent Carbon Majors, but the UCS-led research went further by specifically quantifying proportional increase in atmospheric CO₂, global mean surface temperature, and global sea-level from emissions traced to these major carbon producers. Pertinent key findings show the following:

a) Emissions traced to the 90 largest carbon producers contributed approximately **57% of the observed rise in atmospheric carbon dioxide**, nearly **50% of the rise in global average temperature**, and around **30% of global sea-level rise between 1880-2010**;

b) Emissions linked to **50 investor-owned carbon producers**, including respondents BP, Chevron, ConocoPhillips, ExxonMobil, Peabody, Shell and Total – contributed to roughly **16% of the global average temperature increase from 1880 to 2010**, and around **11% of the global sea-level rise during the same time frame**; and

c) Emissions tied to the same 50 companies from 1980 to 2010, a period of time when fossil fuel companies were well-aware that their products were contributing to climate change, contributed approximately **10% of the global average temperature increase** and about **4% sea-level rise**.⁵⁵⁸

⁵⁵⁶ Exhibit “H,” Ekwurzel, B., *et al.* (23 April 2017), *The Rise in Global Atmospheric CO₂, Surface Temperature, and Sea Level from Emissions Traced to Major Carbon Producers*.

⁵⁵⁷ Exhibit “R” to “R-8,” *Profile and Statement of Peter Frumhoff, PhD*, dated 16 March 2018, p. 2.

⁵⁵⁸ See Exhibit “H,” *supra* note 556; Also see “R” to “R-8,” *Profile and Statement of Peter Frumhoff, PhD*, dated 16 March 2018, pp. 4-5.

8.134. The UCS-led study incorporated emissions data from the 90 carbon producers identified by Mr. Heede into a simple, well-established climate model that captures how carbon dioxide and methane emitted into the Earth’s atmosphere lead to the extra trapping of heat, driving increases in global surface temperature and sea level. Using this model, the research team quantified the results of including or excluding different natural and human contributions to climate change— **based on the very specific contributions of emissions tied to these companies’ products.**⁵⁵⁹

8.135. The UCS-led study **analyzed the climate change impacts associated with each company’s carbon dioxide and methane emissions** for two time-periods: 1880–2010 and 1980–2010. The latter time period was chosen as indicative of a key factor relevant to the **societal assessment of company climate responsibility.**⁵⁶⁰

8.136. In her *Statement*⁵⁶¹ dated 20 September 2018, Dr. Ekwurzel emphasized that their study demonstrates that **the proportional increase in atmospheric carbon dioxide, Global Mean Surface Temperature (GMST), and Global Sea Level (GSL) rise -- key indicators of human impact on the global environment -- from emissions traced to major carbon producers is quantifiable and substantial. The analyses presented in the study could be extended to examine the contribution of emissions traced to major carbon producers to other climate impacts,**⁵⁶² such as historical increases in ocean acidification or the mortality impacts from extreme heat and other extreme events.⁵⁶³

D

**RESPONDENT CARBON
MAJORS’ ACTIONS OR
IN ACTIONS ARE LINKED TO
THE CLIMATE CHANGE
OCCURRING AND/OR
THREATENING TO OCCUR IN
THE PHILIPPINES.**

⁵⁵⁹ *Id.* p. 3.

⁵⁶⁰ *Ibid.*; It is worth noting that despite the year 1980 chosen for the start of the second time period in the UCS-led study, there is documentary evidence that the fossil fuel industry had actual knowledge of the grave dangers posed to people by climate change arising from the use of their fossil fuel products as early as the 1950s and 1960s (see section Part V [D]).

⁵⁶¹ Exhibit “EEEEEEEE” to “EEEEEEEE-3,” *supra* note 135, p. 2.

⁵⁶² *Id.* p. 2.

⁵⁶³ Exhibit “R” to “R-8,” *Profile and Statement of Peter Frumhoff, PhD*, dated 16 March 2018, p. 6.

There is clear link between respondent Carbon Majors' climate pollution and the impacts occurring globally and in the Philippines

8.137. There is a clear link between the concentrations of GHGs in the atmosphere and the median surface global temperatures, as well as ocean acidification.⁵⁶⁴ There is also clear link between respondent Carbon Majors' climate pollution and global impacts, such as surface temperature and sea-level rise, which in turn is resulting loss and damage in the Philippines.⁵⁶⁵ Scientists seek to establish a high-level of certainty, at least 90% certainty, a standard much higher than the "balance of probabilities" test used for civil matters in most jurisdictions (See Part V [C to C.1]).⁵⁶⁶

8.138. As mentioned above, it is possible to identify and quantify the contributions to global temperature change and sea-level rise to emissions generated by products produced and marketed by specific major investor-owned companies -- such as respondents herein -- "providing a potential framework for the apportionment of responsibility for climate-related harm."⁵⁶⁷

8.139. Dr. Ekwurzel answered the Honorable Commission's question on how to use scientific evidence to show the causality between the Carbon Majors' climate pollution and climate impacts globally and in the Philippines. In her answer, Dr. Ekwurzel explained that the scientific study⁵⁶⁸ she co-authored helps to establish **a clear link between the respondents' emissions, based on the Carbon Majors data, and the climate impacts through well-established climate models used by the IPCC.** By running the model, this enabled them to see "how much cooler the surface temperature earth would have been in 2010, see how much lower the seas would have been" without the emissions from the specific companies. This process makes it possible to attribute to specific companies an amount of change in temperature and sea-level rise.⁵⁶⁹

8.140. As shown, the proportional increase in atmospheric carbon dioxide, GMST and GSL rise -- key climate impacts -- can be traced to the emissions of the major carbon producers. **The contribution of the**

⁵⁶⁴ *Ibid.*; See also The IPCC AR5 notes that the cumulative total emissions of CO₂ and global mean surface temperature response are approximately linearly related", IPCC, WGII, AR 5 Chapter 30: The Ocean, *supra* note 309.

⁵⁶⁵ *Id.*

⁵⁶⁶ See Exhibit FFFFFFFF to "FFFFFF-34, Marjanac, S. and Patton, L. (2018), "Extreme Weather Event Attribution Science and Climate Change Litigation: An Essential Step in the Causal Chain?" Journal of Energy & Natural Resources Law, p. 273.

⁵⁶⁷ Exhibit "PPPPPPPP" to "PPPPPPPP-2," *supra* note 132, at p.3.

⁵⁶⁸ Testimony of Dr. Brenda Ekwurzel, TSN 27-28 dated September 2018, p. 34, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-September-27-to-28-New-York-United-States.pdf> (last accessed on 12 September 2019).

⁵⁶⁹ *Id.*

respondent Carbon Majors for climate impacts is, therefore, quantifiable and substantial, and the harm is foreseeable.

8.141. In addition to **source attribution** studies, like the UCS-led undertaking, scientists can also demonstrate the probability of an increased risk of an event happening due to climate change.⁵⁷⁰

8.142. A scientific study by *Soria et al.*, compared super typhoon Haiyan to the 1897 typhoon in San Pedro Bay. While the 1897 typhoon and Haiyan had almost identical tracks, Haiyan was more intense, had larger maximum wind coverage, and moved faster. Despite coming in with storm surges of similar heights on the open Pacific coast, Haiyan's storm surge was about twice the height of the 1897 Typhoon.⁵⁷¹ The study indicates that the intensity of Haiyan made it possible to push more water on to land.⁵⁷² The *Soria et al.* study provides early insight into the relationship between super typhoon Haiyan and climate change, and scientists will continue to run models focusing on this and other devastating storms.⁵⁷³

8.143. Dr. Ekwurzel's statement pointed to an event attribution study of Hurricane Sandy by *Miller et al.* to highlight how such studies can help understand the influence of climate change. This study found that "[a] largely anthropogenically driven global sea level rise (GSL) of 20 cm during the 20th century [Church and White, 2011] caused Sandy to flood an area around 70 km² greater than it would have in 1880, increasing the number of people living on land lower than the storm tide by around 38,000 in New Jersey and by around 45,000 in New York City."⁵⁷⁴ Dr. Ekwurzel explained that this study shows how scientists can "parse different aspects of a typhoon or hurricane" and "figure out what could have been different," and this can translate into the cost of damages.⁵⁷⁵

8.144. Expert witness Dr. Myles Allen also referred to an event attribution study by *Takayabu et al.* to explain the quantification of the impact of large-scale warming on extreme weather events like Typhoon Haiyan. As explained in his testimony, the authors of the *Takayabu et al.* study sought to determine how would Typhoon Haiyan had been if it was not caused by large-scale warming.⁵⁷⁶

⁵⁷⁰ Marjanac and Patton, *supra* note 566, p. 273.

⁵⁷¹ Soria, J., et al., *Repeat storm surge disasters of Typhoon Haiyan and its 1897 predecessor in the Philippines*, Bulletin of American Meteorological Society, doi:10.1175/BAMS-D-14-00245.1, p. 45.

⁵⁷² Ekwurzel, B., TSN 27-28 dated September 2018, p. 33, *supra* note 568.

⁵⁷³ *Id.*

⁵⁷⁴ Miller, K.G., et al. (2013), *A geological perspective on sea-level rise and its impacts along the US mid-Atlantic coast*. *Earth's Future* 1(1):3–18. doi:10.1002/2013EF000135, available at <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2013EF000135> (last accessed on 12 September 2019).

⁵⁷⁵ Ekwurzel, B., TSN 27-28 dated September 2018, pp. 32., *supra* note 568.

⁵⁷⁶ Testimony of Dr. Myles Allen, TSN dated 6-7 November 2018, pp. 121-122, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-November-6-to-7-London-United-Kingdom.pdf> (last accessed on 12 September 2019).

8.145. *Takayabu et al.* conducted ensemble simulations with very high-resolution regional climate models and a surge model, and reproduced well the pressure depression, wind speed and surge level of Haiyan to model a worst-case scenario. Furthermore, they compared these results with the results of 16 (sixteen) ensemble simulations of a hypothetical natural event, one without human influences. What they found is that the simulated worst-case typhoon and the accompanying storm surge in the real condition became worse than those in the hypothetical natural climate without anthropogenic forcing.⁵⁷⁷ As *Takayabu et al.* state:

Typhoon Haiyan (local name Yolanda), the most catastrophic tropical cyclone ever to land in the western North Pacific Ocean, struck the Philippines on 8 November 2013. The typhoon and especially the storm surge in the Leyte Gulf that accompanied it killed more than 6000 people in Tacloban (Schiermeier 2013). We conducted ensemble simulations with very high resolution regional climate models and a surge model, and reproduced well the pressure depression, wind speed and surge level of Typhoon Haiyan, as an example of a worst case scenario. Furthermore, we compared these results with the results of ensemble simulations of a hypothetical *natural* event, one without human influences, and found that the simulated worst case typhoon and the accompanying storm surge in the real condition became worse than those in the hypothetical natural climate without anthropogenic forcing. In 15 of 16 ensemble simulations, the typhoon became stronger than it did in the hypothetical natural cases, and the height of the storm surge around Tacloban increased by around 20%.⁵⁷⁸

8.146. As commended by Dr. Allen, the study shows “**how human influence on climate has exacerbated the impact of that storm and made the highest winds experienced more intense.**”⁵⁷⁹

8.147. In his testimony to the Honorable Commission, Dr. Allen also provided important insights on how to quantify harms on people and ecosystem due to extreme weather events or large-scale warming.

DR. MYLES ALLEN:

How do we actually quantify harm on people, on ecosystems [due] to a large-scale warming or extreme weather? So I'm going to give you a couple of examples here. Obviously the range of harms is very large and this Commission has a very broad brief to address all kinds of

⁵⁷⁷ Exhibit “AAAAA” to “AAAAA-10,” also marked as Exhibit “HHHHH” to “HHHHH-10,” Takayabu, I., *et al.*, *Climate change effects on the worst-case storm surge: a case study of Typhoon Haiyan*, 2015 Environ. Res. Lett. 10 064011, p. 8, also available at <https://iopscience.iop.org/article/10.1088/1748-9326/10/6/064011/pdf> (last accessed on 12 September 2019).

⁵⁷⁸ *Ibid*

⁵⁷⁹ *Ibid*

harm. So I was just going to start off by looking at the sustainable development goals. . . .

This addresses the health question and it shows from a paper that was cited in the reports, [Ana Maria] Vicedo-Cabrera and co-authors looked at the balance between the number of people dying from extreme cold on the left and the number of people dying from extreme heat on the right and how that balance changed between present day conditions, one point five degrees (1.5°) of warming, and what's shown here between one point five degrees (1.5°) and two degrees (2°) of warming. So we are asking what are the avoided impacts of limiting moving to one point five degrees (1.5°) compared to allowing warming to rise to two degrees (2°) because of course the brief of this report was to try and say what's the benefit of limiting warming to one point five degrees (1.5°).

X X X

We see a greater prevalence of increased heat deaths due to hot conditions, then reduced cold deaths due to cold conditions, which is understandable. [The] Philippines is a warm country. It's probably not a country where there are very many deaths due to extreme cold. You can also see, and this is also representative in the Philippines. That's quite a big range of uncertainty in the net impact. **But we are starting to be able to quantify the net impact of different levels of warming on human health and specifically the most extreme manifestation of human health human mortality. . . .**

X X X

. . . Unfortunately the Philippines is one of those countries that is projected to actually experience significant reductions in economic growth at both one point five (1.5) and two degrees (2°) of warming. So even at one point, even going from the current level of warming to one point five degrees (1.5°) of warming is projected to significantly impact the economic development of the Philippines.

So that's focused on the question of whether there is harm. I've given you two (2) examples of documentable harm from the rise in global temperatures that's attributable to these emissions. . . .

X X X

ATTY. MAYO-ANDA:

Thank you, and what do you think is the significance of that study to this current Inquiry?

DR. ALLEN:

Well it showed that it was straightforward to attribute some fraction of the observed increase in global temperature and global sea level to the emissions resulting from product sold by a well-defined group of individual companies. It gave a methodology for breaking down contributions. . . .

X X X

ATTY. MAYO-ANDA:

Okay. Based on the attribution studies, what types of impacts are foreseeable in the Philippines and Southeast Asia, and what should the Philippines be prepared for?

DR. ALLEN:

. . . There remains some continuing argument but there's also, of course, **the simple impact of rising temperatures increasing the risk of heat waves. In very large urban areas, these risks can be further exacerbated by the feedback effects of the island in that affects and enhance the effect of a large scale warming, which of course make the health impacts doubly problematic. And air quality, the way climate change interacts with air quality is also particularly important for health.** So these, I mean, are just some examples, from the top of my head, of impact that I know. A city like Manila would be particularly vulnerable, as a sort of mega city in the developing world, to those kinds of impacts.⁵⁸⁰ (Emphasis supplied)

8.148. In sum, scientific studies like the ones by *Soria et al.* and event attribution studies by *Takayabu et al.* and by *Miller et al.* offer insights into how extreme weather events like super typhoon Haiyan (and Hurricane Sandy) were exacerbated by the human influence on the climate. In turn, source attribution studies like the UCS-led study further show that the respondent Carbon Majors, together and individually, have extracted, marketed, and sold a substantial percentage of the fossil fuels burned globally, releasing an immense amount of carbon pollution into the Earth's atmosphere, which is currently interfering with the climatic system⁵⁸¹ and resulting in impacts.

8.149. While attribution research continues to evolve and improve, the existing studies demonstrate that communities face foreseeable risks from the respondents' past and continued contribution of GHGs, which in turn demands that preventative approach be taken. Furthermore, existing attribution studies can inform the Honorable Commission's findings on the

⁵⁸⁰ Allen, M., TSN dated 6-7 November 2018, pp. 121-139, *supra* note 576.

⁵⁸¹ See Exhibits "VVVV" to "VVVV-14" and Exhibit "H"; Also see Opinion and Order, United States District Court for the District of Rhode Island (22 July 2019), *State of Rhode Island v. Chevron Corp.*, Case 1:18-cv-00395-WES-LDA, citing to complaint paras. 7, 12, 19, 97, *supra* note 26.

legal and moral responsibilities⁵⁸² of the respondents, and on whether they are taking the appropriate preventative measures right now in light of foreseeable risks as demonstrated through the aforementioned studies.

8.150. There is substantial scientific support for the Honorable Commission to find that there is sufficient clear link between the respondent Carbon Majors' carbon emissions and the impacts that are occurring globally and in the Philippines, as described by the respected scientists.

E

**RESPONDENT CARBON
MAJORS ARE RESPONSIBLE,
UNDER INTERNATIONAL LAWS
AND AGREEMENTS AND
DOMESTIC LAWS, TO RESPECT
AND PROTECT THE HUMAN
RIGHTS OF FILIPINOS IN THE
CONTEXT OF CLIMATE
CHANGE.**

8.151. The National Inquiry is replete with evidence showing not only that States have human rights obligations, but that corporations have the responsibility to respect human rights in the context of climate change. The United Nations Guiding Principles on Business and Human Rights (“UNGPs”) explicitly call on companies to respect human rights. The corporate responsibility to respect human rights is not optional— it arises from a global standard of expected conduct that is often reflected in national laws and regulations.⁵⁸³

8.152. The UNGPs require enterprises to assess, address, and take responsibility for the climate-related human rights impacts of their products and operations. Consistent with this obligation, corporations have a duty to reduce their GHG emissions: to a level that avoids or minimizes dangerous anthropogenic interference with the climate system as evidenced by the best available science.⁵⁸⁴

⁵⁸² See Exhibit “VVVVVVVV” to “VVVVVVVV-7,” *Statement of Resource Person, Henry Shue*, dated 21 October 2018 and Exhibit “XXXXXXX” to “XXXXXXX-7,” Shue, H. (07 September 2017), *Responsible for What? Carbon Producer CO₂ Contributions and the Energy Transition*.

⁵⁸³ United Nations Human Rights Council (21 March 2011), *Report of the Special Representative of the Secretary General on the Issue of Human Rights and Transnational Corporations and Other Business Enterprises*, Seventeenth Session (hereinafter, “UNGPs”), available at <http://www.ohchr.org/documents/issues/business/A.HRC.17.31.pdf> (last accessed on 06 September 2019).

⁵⁸⁴ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 60.

8.153. Notably, under *Section 2, Article II of the 1987 Philippine Constitution*, the Philippines adopts the generally accepted principles of international law as part of the law of the land.⁵⁸⁵ This should guide the Honorable Commission in its investigation.

8.154. In any event, with due respect, petitioners submit that the Honorable Commission should take a purposive and holistic approach to applying human rights standards in its investigation.⁵⁸⁶ To assess the respondent Carbon Majors' responsibility, fundamental principles of legal and moral responsibility must both be considered. These include the respondents' knowledge or notice of potential harms, whether the harms were reasonably foreseeable, the opportunity to avoid or reduce those harms, and whether the harms were caused by their actions—all clearly set out in Part V (D) hereof (Material Facts as Established by Evidence).⁵⁸⁷

8.155. Based on the pieces of evidence and analyses presented by the petitioners, the expert witnesses, and the *amici*, **there is consensus that respondent Carbon Majors have substantial responsibilities to ensure their products and operations do not contribute to human rights impacts, impairments, infringements, abuses, and/or violations arising from climate change, as well as to provide remedy and redress where such violations occur.**

8.156. Based on the information available to the petitioners, the respondents have failed to fulfill these duties. The respondent Carbon Majors' past and current business models and activities contributed to climate-related human rights violations in the Philippines and beyond. The severity of these human rights impacts, impairments, infringements, abuses, and/or violations will continue to grow unless the respondents implement measures consistent with the UNGPs and other applicable norms.⁵⁸⁸

The respondent Carbon Majors' responsibility should be assessed on a corporate group basis

8.157. The *Interpretive Guide to the Guiding Principles* (hereinafter, "Interpretive Guide") confirms that an enterprise can contribute to an adverse

⁵⁸⁵ See <https://www.officialgazette.gov.ph/constitutions/1987-constitution/#article-ii> (last accessed on 12 September 2019).

⁵⁸⁶ *Id.*, p. 18.

⁵⁸⁷ *Id.*, p. 60. This summary was compiled with inputs by the Center for International Environmental Law (CIEL), Asia Pacific Forum of National Human Rights Institutions & the Global Alliance of National Human Rights Institutions (APF & GANHRI), ClientEarth, and Plan B. This is based on their previously submitted amicus curiae briefs as well as relevant updates.

⁵⁸⁸ *Ibid.*

human rights impacts through the legal sale of its products.⁵⁸⁹ Each business is expected to carry out its human rights responsibilities autonomously even if the individual roles and contributions to climate change differ, as every business, regardless of size or sector, is expected to respect human rights under *Principle 14 of UNGPs*.⁵⁹⁰ An enterprise theory of corporate personhood entails that the activities of the whole group of companies -- and specifically the GHG emissions attributable to the group as a whole -- should be aggregated and attributed to the parent entity.

The UN Guiding Principles on Business and Human Rights: Implementing the UN “protect, respect, and remedy” framework

8.158. Businesses have significant responsibilities to respect human rights, and States must ensure corporate compliance with these responsibilities and provide for corporate accountability and access to justice when standards are not met.⁵⁹¹ States also have direct obligations, known as *duties*, because of the undertakings that they have willingly made through treaties or other sources of law.

8.159. Business enterprises, on the other hand, have significant responsibilities, as opposed to direct obligations, under international law. This does not diminish the significance of corporate responsibilities, as they can also be drawn from national legislation or guidelines following States’ implementation of their international obligations.⁵⁹²

8.160. As mentioned, **the responsibility to respect human rights arises from a global standard of expected conduct for all business enterprises wherever they operate.** This exists over and above compliance with national laws and regulations protecting human rights and independently of States’ abilities or willingness to fulfill their own human rights obligations. This responsibility also exists independently of an enterprise’s own commitment to human rights.⁵⁹³

⁵⁸⁹ United Nations Office of the High Commissioner of Human Rights (2012), *The Corporate Responsibility to Respect Human Rights: An Interpretive Guide*, pp. 46-49 (hereinafter, “Interpretive Guide”), available at https://www.ohchr.org/Documents/Publications/HR.PUB.12.2_En.pdf (last accessed 06 September 2019)

⁵⁹⁰ See Exhibit “QQQ” to “QQQ-8,” *Profile and Statement of Michael K. Addo*, dated 20 May 2018, p. 8.

⁵⁹¹ De Schutter, O., et al., (2012), *Commentary to the Maastricht principles on extraterritorial obligations of states in the area of economic, social and cultural rights*. Human Rights Quarterly, 34 (4), pp. 1084-1169. ISSN 0275-0392, available at

http://eprints.lse.ac.uk/47404/1/_lse.ac.uk_storage_LIBRARY_Secondary_libfile_shared_repository_Content_Salomon,%20M_Commentary%20to%20Maastricht%20principles_Salomon_Commentary%20Maastricht%20principles_2015.pdf (last accessed on 12 September 2019).

⁵⁹² Addo, M., *supra* note 590, p. 8.

⁵⁹³ Interpretative Guide, *supra* note 589, pp. 13-14.

8.161. The UNGPs, implementing the UN's "*protect, respect, and remedy*" framework adopted by the Human Rights Council in 2011, restates and codifies existing international and national legal standards on human rights and business enterprises. Endorsed by the UN Human Rights Council as the foundation for assessing corporate responsibilities to uphold human rights, they present the most authoritative statement on the subject.⁵⁹⁴

8.161.1. The UNGPs, which is based on three pillars,⁵⁹⁵ do not purport to create new obligations, but rather encapsulate existing and established international human rights law relevant to private actors. The Honorable Commission should rely on the UNGPs in making findings in its factual investigation into the responsibility of respondent Carbon Majors for climate-related human rights harms.⁵⁹⁶ Eighteen (18) respondent Carbon Majors are listed as participants in the UN Global Compact,⁵⁹⁷ which "promotes tools and resources" aligned with the UNGPs.⁵⁹⁸

8.161.1.1. In the case of *Kaliña and Lokono Peoples v. Suriname*, the Inter-American Court of Human Rights relied on the UNGPs, specifically taking note that "businesses must respect and protect human rights, as well as prevent, mitigate, and accept responsibility for the adverse human rights impacts directly linked to their activities."⁵⁹⁹

8.161.2. Compliance with the UNGPs should be interpreted in accordance with international law governing climate change, including the UNFCCC and the best available science, as well as with norms of international environmental law, including the **precautionary principle**, the **polluter pays principle**,⁶⁰⁰ and **preventive approach**.

8.161.3. The UNGPs entail a corporate responsibility to protect human rights in both **substance** and **process**. Business enterprises should avoid infringing on the human rights of others

⁵⁹⁴ Addo. M., *supra* note 590.

⁵⁹⁵ The *first pillar* is the duty of States to protect everyone from human rights abuse, including from third parties such as businesses. The *second pillar* is the responsibility of business enterprises to respect human rights in all their activities. The *third pillar* covers the range of mechanism, from judicial, national human rights institutions, to corporate grievance, to remedy any human rights harms; Addo., M., *supra* note 590, p. 3, TSN dated 23 May 2018 p. 102; Exhibit "SSS," slide 6; Exhibit "QQQ," A18, p. 3, available at https://www.ohchr.org/documents/publications/GuidingprinciplesBusinesshr_eN.pdf (last accessed on 12 September 2019).

⁵⁹⁶ See ClientEarth *Amicus Brief*, *supra* note 37, p. 51-56.

⁵⁹⁷ Annex "E" hereof (Respondent Carbon Majors' Commitments, Scores, and Grades)

⁵⁹⁸ See <https://www.unglobalcompact.org/what-is-gc/our-work/social/human-rights> (last accessed on 12 September 2019).

⁵⁹⁹ Inter-Am. Ct. H. R., Judgment (Merits, Reparations, and Costs), par. 224 (25 November 2015), available at http://www.corteidh.or.cr/docs/casos/articulos/seriec_309_ing.pdf (last accessed on 12 September 2019).

⁶⁰⁰ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 65.

and should address adverse human rights impacts with which they are involved.⁶⁰¹

8.162. *Principle 11 of the UNGPs* affirms the already established responsibility of business enterprises to respect people's human rights. The practical implications of the UNGP are set out in the *Operational Principles* of the UNGP and include:

1. Committing at the highest level to respect human rights;
2. Undertaking human rights due diligence to identify and avoid potential adverse impacts ("knowing and showing"); and
3. Providing remedy in the event of adverse harm.⁶⁰²

8.163. More specifically, **business enterprises must:**

1. **Assess the potential impact of their products and activities on human rights;**
2. **Put in place measures to prevent negative impacts;**
3. **Make these findings and prevention measures public;** and
4. **Take measures to remedy human rights abuse that they cause or contribute by themselves or with others in a mechanism that is accessible, predictable, transparent, equitable, human rights compatible and legitimate.**⁶⁰³

8.164. *Principle 12 of the UNGPs* states that the rights that must be respected by all businesses include, at minimum, the rights recognized in the International Bill of Rights (i.e., UDHR, ICCPR, and ICESCR) and the principles concerning fundamental rights set out in the International Labour Organization's *Declaration on Fundamental Principles and Rights at Work*.⁶⁰⁴

8.165. Under *Principle 13 of the UNGPs*, business enterprises must avoid causing adverse human rights harm through climate change or contributing to such adverse human rights harms. They must also seek to prevent or mitigate such adverse human rights harms when their operations

⁶⁰¹ See Principle 11 UNGP, *supra* note 583; Addo, M., *supra* note 590, p. 5.

⁶⁰² See Principle 11 UNGP, *supra* note 583; Addo, M., *supra* note 590, p. 5.

⁶⁰³ *Operational Principles of the Guiding Principles*, cited in Addo, M., *supra* note 590, p. 5.

⁶⁰⁴ Principle 12 UNGP, *supra* note 583; *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 64.

are linked to the harms arising from climate change.⁶⁰⁵ More specifically, ***Principle 13 of the UNGPs*** states:

The responsibility to respect human rights requires that business enterprises:

- a) Avoid causing or contributing to adverse human rights impacts through their own activities, and address such impacts when they occur;
- b) Seek to prevent or mitigate adverse human rights impacts that are directly linked to their operations, products or services by their business relationships, even if they have not contributed to those impacts.⁶⁰⁶

8.166. ***Principle 13 of the UNGPs*** is utilized when business activities contribute to adverse human rights impacts, **even though it may not be the only cause of the adverse impact**. The UNGPs call for the application of a **test of contributory causation**, balanced by a **standard of reasonableness**.⁶⁰⁷

8.167. ***Principle 19(b) of UNGPs*** further elaborates on appropriate action, which will vary according to “(i) whether the business enterprise causes or contributes to an adverse impact, or whether it is involved solely because the impact is directly linked to its operations, products or services by a business relationship; (ii) the extent of its leverage in addressing the adverse impact.”⁶⁰⁸

8.168. In the climate change context, respecting the UNGPs means that business enterprises, including the respondent Carbon Majors should stop causing or contributing to adverse human rights impacts through their own activities -- such as the production, marketing, and sale of fossil fuels and efforts to delay or stop regulations restricting fossil fuels. They must also address such climate-related human impacts when they occur, as well as prevent or mitigate adverse climate-related human rights impacts that are directly linked to their operations, products or services by their business relationships, even if -- assuming for the sake of argument -- they have not contributed to those impacts.

8.169. ***Principle 13 of UNGPs*** also requires that business enterprises use appropriate means equivalent to the scale of the risks to human rights from climate change to reduce their emissions in order to meet their responsibility to respect human rights.⁶⁰⁹

⁶⁰⁵ Addo, M., *supra* note 590, p. 5.

⁶⁰⁶ UNGPs, *supra* note 583.

⁶⁰⁷ ClientEarth *Amicus Brief*, *supra* note 37, para. 90; Also *Interpretive Guide*, *supra* note 589.

⁶⁰⁸ Principle 19 UNGP, *supra* note 583.

⁶⁰⁹ Principle 12 UNGP, *supra* note 583; *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 64.

8.170. In order to effectively comply with the UNGPs, the respondent Carbon Majors should **prepare and publish detailed business plans describing how they will adjust their operations and activities so as to avoid infringing on human rights and remedy the human rights harms that have occurred.**⁶¹⁰

8.171. To reiterate, based on petitioners' expert submissions summarized in **Annexes "D" and "E"** and in **Part V D.8** hereof, there is no evidence that respondent Carbon Majors have adequately and transparently taken the following actions to-date:

- a) Align their business models to a global average temperature level that avoids or minimizes dangerous anthropogenic interference with the climate system as evidenced by the best available science, and at the very minimum with the politically agreed 1.5°C temperature goal in the *Paris Agreement* and a carbon budget that provides the greatest possibility of keeping warming below 1.5°C;
- b) Take responsibility for the actual, real emissions from its products and operations, and not the company's "net carbon footprint," which is defined as the emissions per unit of energy the company sells;⁶¹¹
- c) Adequately acknowledge the impacts of climate change on the exercise of human rights since they first became aware of the potential climate risks and into the future;⁶¹²
- d) Renounce disinformation on climate science and policy;⁶¹³
- e) Include climate change as a human rights matter in human rights due diligence;⁶¹⁴
- f) Identify and assess the specific human rights impacts of climate change arising from their operations and products, drawing on human rights expertise, and involving meaningful consultation with potentially affected groups and other relevant stakeholders in the Philippines;⁶¹⁵ and

⁶¹⁰ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 65.

⁶¹¹ Muttitt, G. (20 May 2019), *Shell's Emissions Still Going Up Despite Accounting Device*, available at <http://priceofoil.org/2019/05/20/shell-emissions-still-going-up-despite-accounting-trick/> (last accessed on 06 September 2019).

⁶¹² *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 64.

⁶¹³ Union of Concerned Scientists, *The Climate Deception Dossiers* (2018), *supra* note 219.

⁶¹⁴ *Ibid.*

⁶¹⁵ *Id.* pp. 64-65.

- g) Tracked the effectiveness of their response by fully reporting on their total greenhouse gas emissions (including across the full life-cycle of their products), as well as proposed actions to mitigate their emissions into the future, including appropriate emissions reduction targets and investments into renewable energy.⁶¹⁶

A. Corporate human rights due diligence

8.172. *Principles 15 through 17 of the UNGPs* require business enterprises to have policy commitments to reducing their impacts on human rights, a due diligence process, and processes to enable remediation.⁶¹⁷ *Principle 17 of UNGPs* specifically states that business enterprises should carry out human rights due diligence, which includes “assessing actual and potential human rights impacts, integrating and acting upon the findings, tracking responses, and communicating how impacts are addressed.”⁶¹⁸

8.173. Corporate human rights due diligence refers to mechanisms and processes to reveal the potential impacts of the enterprise’s activities. The **due diligence process** refers to two distinct processes, one is an **investigation of facts**, and the other is an **evaluation of the facts** considering the relevant standards of care. Properly conducted due diligence requires the business enterprise to use its informed and reasoned judgement to actively investigate, assess, and respond to areas of known or potential risk to meet its responsibility to respect human rights.⁶¹⁹

8.174. For human rights purposes, **due diligence is expected to reveal as much of the risks to the business enterprise as it does for other third-party stakeholders.**⁶²⁰ A non-performance of the elements of due diligence either suggests that the business enterprise is unaware of the risks of its activities or that the business enterprise is not publicly communicating about its policies.

8.175. A business enterprise that has no clear human rights due diligence policy also has no idea what the risks are, which means it is likely that it is committing adverse human rights impacts.⁶²¹ A business enterprise that is aware of the impacts and harms its activities are producing on people’s human rights, but does not take steps to prevent, mitigate, or address them is

⁶¹⁶ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 65.

⁶¹⁷ Principle 12 UNGP, *supra* note 583; *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 64.

⁶¹⁸ Addo M., *supra* note 590, p. 6.

⁶¹⁹ *Joint Summary of Amicus Curiae Briefs*, *supra* note 50, p. 64.

⁶²⁰ Addo, M., *supra* note 590, p. 7.

⁶²¹ Interpretative Guide, *supra* note 589, p. 65.

impairing, infringing, abusing, and/or violating people's human rights in contradiction with the UNGPs.

8.176. The general responsibility of business enterprises is to prevent adverse human rights harm resulting from climate impacts by undertaking due diligence to assess and understand the known and foreseeable emerging risks.

8.177. In particular, due diligence requires the business enterprises to:

1. Assess the actual and potential impacts of business activities on human rights;
2. Act on the findings of the assessment, including, but not limited to, integrating appropriate measures to address impacts into company policies and practices; and
3. Communicate to the outside world about the due diligence process and results.⁶²²

8.178. To meet their corporate human rights responsibilities, **business enterprises must know and show, meaning they must assess the risks and impacts of its activities on human rights and publicly disclose this information and the measures taken.**⁶²³ Importantly, **effective due diligence must assess the foreseeable human rights impact** which should be tracked across the entire business operations products or services by their business relationship, and any **lessons learned should be incorporated** into the enterprise's policies.⁶²⁴

8.179. In the climate context, this means that business enterprises must avoid causing adverse human rights harms or contributing to such adverse human rights harms that result from climate impacts. They must also seek to prevent or mitigate such adverse human rights harms when their activities are linked to the harms arising from climate change.⁶²⁵ The level of contribution to climate change does not change the responsibilities of businesses to respect human rights.⁶²⁶

8.180. The inescapable conclusion is that respondent Carbon Majors are not conducting due diligence that meets the reasonable standards expected of them to comply with their responsibility to respect human rights in the context of climate change. This has been demonstrated by the respondent Carbon Majors' past and current actions and/or inactions, which are not

⁶²² CIEL *Amicus Brief*, *supra* note 47, p. 10.

⁶²³ Addo M., *supra* note 590, pp. 7-9; Principle 17 UNGP, *supra* note 583.

⁶²⁴ *Ibid.*

⁶²⁵ Principle 13 UNGP, *supra* note 583; Addo, M. *supra* note 590, p. 6.

⁶²⁶ Principle 14 UNGP, *supra* note 583; Addo, M. *supra* note 590, p. 6.

reflective of or contrary to some of their purported climate and human rights commitments, that include efforts to undermine climate science and action and continued investments in extraction of fossil fuels despite clear scientific requirements for a phase-out in order to protect people and ecosystems.

B. Due diligence for the respondent Carbon Majors

8.181. The UNGPs are intended “to prevent business enterprises from escaping responsibility through the outsourcing of potentially harmful activities to others through their business relationships.”⁶²⁷ This includes being held legally responsible for climate impacts.

8.182. As repeatedly asserted, business enterprises -- regardless of their level of contribution to GHGs, which caused and are causing climate change -- must conduct human rights due diligence. An effective human rights due diligence process in the context of climate change should ensure that the company has a strong governance framework by which corporate management acknowledges and describes how they assess and manage the impact of their operations’ contribution to climate change on human rights. **To meet this obligation, respondent Carbon Majors should:**

1. **Implement processes to assess climate change-related human rights impacts of their products and activities;**
2. **Implement measures to rapidly reduce GHG emissions, including overseas production and activities, major subsidiaries and their entire supply chain; and**
3. **Make the relevant information about their emissions and mitigation efforts public.**⁶²⁸

8.183. The application of the UNGPs, especially the requirement of due diligence, allows for a focused scrutiny on the steps that respondents should have taken and should be taking to fulfill their corporate responsibilities to respect human rights.⁶²⁹ Some questions that are relevant in this regard include:

⁶²⁷ ClientEarth, CIEL, APF-GANHRI, Plan B, *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 65, citing Mark B. Taylor (ICAR), *Human Rights Due Diligence: The Role of the States* (2013 Update), p. 13, available at www.bhrinlaw.org/icar-human-rights-due-diligence-2013-update-final.pdf (last accessed on 12 September 2019).

⁶²⁸ See Exhibit “DDDDDDDDDD” to “DDDDDDDDDD-3, *Statement of Resource Person Kumi Naidoo*, dated 06 December 2018, p. 9.

⁶²⁹ See Exhibit “CCCC” to “CCCC-6,” *Statement of Statement of Dr. Marcos Orellana*, p. 2, *supra* note 406.

- a) Have respondent Carbon Majors assessed the potential climate-related human rights risks that are associated with their own activities and/or directly linked to their operations, products, or services by their business relationships?
- b) Have they disclosed those potential risks?
- c) Have they disclosed truthful information or have they otherwise engaged in a campaign of systematic denial or misinformation?
- d) Have they adopted plans to prevent those risks or to mitigate them?
- e) Do they have policies in place to address these risks?
- f) More generally, have they applied the financial and human resources to the best of their capacity to prevent and address the risks associated with their activities?⁶³⁰

8.184. Complying with their human rights due diligence entails that respondent Carbon Majors would produce, in consultation with relevant stakeholders, a robust analysis of the company's direct and indirect greenhouse gas emissions in the context of the politically agreed 1.5°C temperature goal in the *Paris Agreement*, as assessed by the IPCC in its **2018 1.5°C Special Report**.⁶³¹

8.185. Furthermore, to meet their due diligence obligations, respondents should describe how they will reduce emissions from their operations and products in line with the global carbon budget implied by 1.5°C temperature goal, at a minimum, in order to avoid infringing on human rights.⁶³²

C. Due diligence entails compliance with the Task Force on Climate-related Financial Disclosures

8.186. Human rights due diligence also means reporting, at a minimum, on compliance with the recommendations presented by the *Task Force on Climate-related Financial Disclosures* (TCFD) at the G20 conference in 2017 (TCFD recommendations).⁶³³ The TCFD recommendations present a

⁶³⁰ *Ibid.*

⁶³¹ Marjanac, S., *supra* note 136, p. 35.

⁶³² *Id.*, p. 47.

⁶³³ TCFD, *supra* note 160, citations omitted.

methodology by which companies can voluntarily disclose climate-related financial risks to the market, in the interests of improving financial stability through the disclosure of information regarding material risks.⁶³⁴

8.187. The physical and economic impacts of climate change and the transition to a zero-carbon economy present foreseeable, material, and financial risks for nearly all industries and sectors within mainstream investment horizons.⁶³⁵

8.188. Respondent Carbon Majors should at a minimum rely on the TCFD's specific guidance on how to quantify and disclose climate risks, including the:

1. Risks from the physical impacts of climate change;
2. Transition risks, which arise from the transition to a low carbon economy and include the risk of stranded assets; and
3. Associated litigation risks, which could arise from the above risks themselves, or from liability claims.⁶³⁶

8.189. The TCFD recommendations also suggest that companies' disclosure cover the following areas: governance, strategy, risk management and metrics, and targets.⁶³⁷

8.190. For the respondent Carbon Majors, implementing the TCFD recommendations will assist them in **meeting some of their *existing* legal obligations in respect of climate-related disclosure**. Disclosing in accordance with the TCFD's guidance will also assist respondents to prepare for the coming transition to a low carbon economy, by preparing executives for a range of possibly disruptive futures, as well as prepare the companies for the physical disruption that will occur from increasing extreme weather events and rising sea levels.⁶³⁸ However, this type of disclosure does not replace the need for due diligence requirements of "knowing and showing," as outlined by the UNGPs.

⁶³⁴ *Ibid.*

⁶³⁵ So much that in 2015, Bank of England Governor and head of the G20 Financial Stability Board Mark Carney declared that climate-related financial risk threatens the very stability of the global financial system. See Mark Carney (29 September 2015), *Breaking the tragedy of the horizon—climate change and financial stability*, Speech given at Lloyd's of London, available at <https://www.bankofengland.co.uk/speech/2015/breaking-the-tragedy-of-the-horizon-climate-change-and-financial-stability> (last accessed on 12 September 2019).

⁶³⁶ Exhibit "GGGGGGG" to "GGGGGGG-20," *Printed PowerPoint Presentation of Brenda Ekwurzel, entitled "Presentation for the Republic of the Philippines Commission on Human Rights National Inquiry on Climate Change,"* slide 18.

⁶³⁷ *Id.*, slide 10.

⁶³⁸ Marjanac, S., *supra* note 136, p. 40.

D. Operational obligations for the Carbon Majors

8.191. As stated in the *Interpretive Guide*, “respecting human rights is not a passive responsibility: it requires action on the part of businesses.”⁶³⁹ The UNGPs further detail this responsibility in *Principle 15* in the form of operational principles that business enterprises are expected to meet in order to implement the foundational principles. These operational principles are:

1. The obligations to have a statement of policy commitment, a human rights due diligence process and processes to enable remediation;
2. Having a human rights due diligence process to identify, prevent, mitigate and account for how they address their impacts on human rights, as detailed in Principle 17 (see section above); and
3. Implementing processes to enable the remediation of any adverse human rights impacts they cause or to which they contribute.⁶⁴⁰

8.192. In the context of climate change, compliance with the requirements of *Principle 15 of the UNGPs* requires business enterprises to have:

1. A policy commitment to meet their responsibility to respect those human rights that are being and will be infringed by climate change;
2. A due diligence process to identify, prevent, mitigate, and account for how they address the impacts of their greenhouse gas emissions on human rights; and
3. Processes to enable the remediation of the adverse human rights impacts of climate change that are already occurring or have occurred.⁶⁴¹

8.193. *Principle 16 of the UNGPs* elaborates on the operationalization of each of these three requirements. As stated in the *Joint Summary of the Amicus Curiae*, applying these principles to the human rights implications of climate change entails the responsibilities of the respondents to:

⁶³⁹ Interpretive Guide, *supra* note 589.

⁶⁴⁰ Principle 15 UNGP, *supra* note 583; ClientEarth *Amicus Brief*, *supra* note 37, para. 90.

⁶⁴¹ *Ibid.* para. 111.

1. Acknowledge, in their statement of policy created under *Principle 16*, the effect of climate change on the exercise of human rights now and in the future;
2. Include climate change as a human rights issue in human rights due diligence undertaken in accordance with *Principle 17*;
3. Identify and assess the specific human rights impacts of climate change arising from their operations and products, drawing on human rights expertise;
4. Take appropriate action to mitigate the greenhouse gas emissions from their operations and products, which may (or may not) constitute a crucial relationship as defined in *Principle 19*, for some of respondent Carbon Majors; and
5. Track the effectiveness of their response by fully and adequately reporting on their total greenhouse gas emissions (including across the full life-cycle of their products), as well as proposed actions to mitigate their emissions into the future including appropriate emissions reduction targets, and diversification of energy sources. This should be transparently produced and documented, to fully comply with *UNGP Principles 20-21*.⁶⁴² (Emphasis supplied)

8.194.If, however, the process fails, businesses should provide remediation, which can take various forms. A good corporate grievance mechanism must be accessible, predictable, transparent, equitable, human rights compatible, and legitimate.⁶⁴³ Under *Principle 22 of the UNGPs*, where business enterprises identify that they have caused or contributed to adverse impacts, they should provide for or cooperate in their remediation through legitimate processes.⁶⁴⁴

8.195.Even with the best policies and practices, a business enterprise may cause or contribute to an adverse human rights impact that it has not foreseen or that was unpreventable. Business enterprises must be able to identify such a situation, whether through its human rights' due diligence process or other means, as its responsibility to respect human rights **entails active engagement in remediation**, by itself or in cooperation with other actors.⁶⁴⁵

⁶⁴² *Joint Summary of the Amicus Curiae*, *supra* note 50, pp. 64-65.

⁶⁴³ Addo, M., *supra* note 590, p. 9.

⁶⁴⁴ Knox, J., TSN dated 27-28 September 2018, p. 110, *supra* note 511.

⁶⁴⁵ *Ibid.*

International human rights law and other international agreements

8.196. To avoid needless redundancy, petitioners adopt their discussion on corporate responsibility under different international treaties and agreements, as discussed in their *Petition* and *Consolidated Reply*. Considering that this is an investigation on the responsibility of the respondent Carbon Majors in the context of climate change using the human rights lens, petitioners digested below pertinent discussion under international human rights law.

8.197. States have the obligation to mitigate the harmful effects of climate change by taking all reasonable steps to the full extent of their abilities to prevent or reduce greenhouse emissions within the shortest possible time, both nationally and through international cooperation, and to hold the increase in temperature below levels that would cause widespread harm to the enjoyment of human rights.⁶⁴⁶ They must adopt all necessary measures to assist those within their jurisdiction to adapt to the foreseeable and unavoidable effects of climate change, thereby minimizing the impact of climate change on their human rights.⁶⁴⁷

8.198. Human-rights based climate action should be transparent and accountable, sustainable, evidence-based, and non-discriminatory in nature, ensuring the access and participation of vulnerable groups.⁶⁴⁸ The obligations of States to respect, protect, and fulfill human rights is enshrined in numerous treaties, as well as part of the international customary law and national law. It is also at the cornerstone of the first pillar of the UNGPs.⁶⁴⁹

8.199. All States have these obligations regardless of whether they are directly responsible for the human rights violations in question, since all States have an obligation to protect human rights from harms caused by third parties, including businesses.⁶⁵⁰

8.200. A State may also be responsible for extraterritorial human rights violations where there is a causal connection between an activity in its territory (or jurisdiction) and transboundary environmental harm that impairs human rights in another territory or jurisdiction. This was one of the conclusions by the court in the *Advisory Opinion on the Environment and Human Rights and the Environment*, published by the Inter-American Court

⁶⁴⁶ Knox, J., TSN dated 27-28 September 2018, p. 110, *supra* note 511.

⁶⁴⁷ Naidoo, K., *supra* note 628, p. 9.

⁶⁴⁸ See Exhibit “NNNNNNNNNN” to “NNNNNNNNNN-1,” *Statement of Ms. Loretta Ann Rosales*, dated 11 December 2018, p. 2.

⁶⁴⁹ *Id.* p. 1.

⁶⁵⁰ Naidoo, K., TSN dated 11-12 December 2018, p. 120, *supra* note 374.

of Human Rights (the IACtHR) in February 2018 (See Exhibit “CCCC” to “CCCC-6,” *Statement of Dr. Marcos Orellana*, which discussed this.).

Civil liability (Non-contractual or Tort)

8.201. The Honorable Commission “can and should draw on that larger body of human rights law and fundamental principles of legal and moral responsibility that apply across legal domains,” including in the Philippines, in assessing the role and responsibilities of Carbon Majors with respect to climate change and human rights responsibilities outlined in the UNGPs.⁶⁵¹

8.202. When determining whether a business enterprise can be held liable for a harm, civil liability (as opposed to criminal or contractual liability) and human rights law are centered around two elements of responsibility—whether the actor has:

1. The ability to foresee a harm; and
2. The ability and opportunity to avoid or minimize that harm.⁶⁵²

8.203. Generally, in civil liability, whether claimants can seek a remedy depends in part on the links between an identifiable plaintiff, an identifiable defendant, and a causal chain that connects the harms suffered to the actions or inactions of the defendant.⁶⁵³ Under certain areas of law, like strict liability, proof of causation alone will trigger liability, regardless of the conduct by the plaintiff. Alternatively, under a theory of comparative negligence, a defendant is only liable for a percentage of fault.

8.204. However, allocating responsibility, particularly among corporate actors for human rights violations, is a matter of **evolving jurisprudence** that balances considerations of **statutory mandate, fairness, moral, and ethical obligations**, among other considerations.⁶⁵⁴ Therefore, **judicial bodies tend to seek evidence that a defendant not only caused a harm, but that they were responsible for that harm in some way, such as by acting (or failing to act) in a way that that rendered them morally responsible for addressing and remedying the consequences of those actions.**⁶⁵⁵

8.205. The International Commission of Jurists (ICJ) explicitly addressed the fundamental tenets of civil liability in a comparative study

⁶⁵¹ CIEL and Plan B, *Joint Summary Amicus*, *supra* note 50, p. 67.

⁶⁵² Smoke and Fumes Report, *supra* note 51, p. 5.

⁶⁵³ See Exhibit “KK” to “KK-10,” *Profile and Statement of Lisa Anne Hamilton, JD*, p. 7.

⁶⁵⁴ *Ibid.*

⁶⁵⁵ Smoke and Fumes Report, *supra* note 51, p. 4.

conducted in both common law and civil law countries.⁶⁵⁶ The ICJ distilled the principles of civil liability into five basic questions, which it found equally applicable in determining whether business enterprises were complicit in human rights abuses:

1. Was harm inflicted to an interest of the claimant that is protected by law?
2. Did the business enterprise's conduct contribute to the infliction of the harm?⁶⁵⁷
3. Would a prudent business enterprise in the same circumstances have known that its conduct posed a risk of harm to the victim?
4. Was the risk real and substantial?
5. Considering the risks, did the business enterprise take measures that a prudent company would have taken to prevent the risk from materializing?⁶⁵⁸

8.206. On the issue of reasonable foreseeability of the harm, courts hold manufacturers to an expert standard.⁶⁵⁹ **A business enterprise that produces a product or places it into the stream of commerce is presumed to be fully informed of the data and science regarding its products and processes, including any hazards they may pose.⁶⁶⁰ Failure to disclose these intrinsic risks is often a form of false advertising, as consumers are not able to make informed choices.**

8.207. In assessing respondent Carbon Majors' responsibility for the impacts of climate change on Filipino people, the Honorable Commission should take into account the fundamental principles of legal responsibility. The Commission should consider:

1. The respondents' knowledge or notice of potential harms, including whether it was reasonably foreseeable;
2. The opportunity to avoid or reduce those harms; and

⁶⁵⁶ International Commission of Jurists, *Corporate Complicity and Legal Accountability*, Volume 3: Civil Remedies (2008), available at <https://www.icj.org/wp-content/uploads/2012/06/Vol.3-Corporate-legal-accountability-thematic-report-2008.pdf> (last accessed on 12 September 2019), cited in *Smoke and Fumes Report*, *supra* note 51, p. 6.

⁶⁵⁷ *Ibid.*

⁶⁵⁸ See Exhibit "TT" to "TT-27," *Printed PowerPoint presentation of Carroll Muffett, entitled "The Legal and Evidentiary Basis for Holding Carbon Majors Accountable for the Climate Crisis,"* slide 17.

⁶⁵⁹ *Ibid.*

⁶⁶⁰ Muffett, C., *supra* note 141, p. 11.

3. Whether the harm was caused by their actions.⁶⁶¹

8.208. The above was extensively discussed in this memorandum, pointedly under Part V (D) dealing with Material Facts as Established by Evidence.

8.209. To summarize, the Honorable Commission should note that respondent Carbon Majors have “long known that the production and use of their products contribute substantially to climate change, which continues to have significant impacts and adverse consequences for people, especially vulnerable populations.”⁶⁶² Fossil fuel companies are presumed to be experts in all aspects of the products they produced, manufactured, marketed, or otherwise put into the stream of commerce.⁶⁶³

8.210. Respondent Carbon Majors did not provide adequate warnings regarding the inherent risks related to the use of their fossil fuel products; thus, failing to enable users to make an informed choice about the use of their products and to understand the potential hazards to which that choice may expose them and others. Additionally, warnings can enable individuals, through their consumption decisions, to push companies to adapt their business model based on consumer demand.

8.211. Based on the evidence presented to the Honorable Commission, fossil fuel industry experts had knowledge of the risks associated with the use of their products and the fact that, collectively, the respondent Carbon Majors were aware that climate change -- primarily caused by the burning of fossil fuels -- posed significant and severe risks to basic human rights, including the right to life, access to food, access to water, and the general right to livelihood, and that respondents have been aware of the risks of climate change and their product’s role in exacerbating those risks since the 1950s or the 1960s, at the latest.

8.212. Instead of enabling consumers to make informed choices on the intrinsic risks with the use of their fossil fuel products, the respondent Carbon Majors did not warn investors, consumers, communities, and the public that there were climate risks associated with the use of fossil fuels and, instead, promoted disinformation and climate denial and sought to delay climate action and solutions.

8.213. Most, if not all, respondents failed to deploy the technologies that may have prevented climate crisis and support action to address climate change in the Philippines or at the global level.

⁶⁶¹ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 59.

⁶⁶² *Ibid.*

⁶⁶³ Muffett, C., *supra* note 141.

8.214. Fundamentally, the pieces of evidence at hand show that many of the respondents knew the risks of their products, and yet continued to expand their production of fossil fuel to ever greater levels over time. Indeed, more than fifty percent (50%) of all CO₂ emitted into the atmosphere was emitted after 1988, at which point respondents had already been on notice for decades of these risks.⁶⁶⁴

Responsibility of respondent Carbon Majors under domestic or national laws and rules

8.215. In addition to the respondent Carbon Majors' responsibility under international laws, treaties, and agreements, petitioners submit there are ample legal grounds to hold the companies responsible under national laws. The Honorable Commission can anchor its finding of responsibility against respondents under the following domestic laws and causes of action – e.g., public nuisance⁶⁶⁵ and misleading advertisement⁶⁶⁶ -- which will give life to the spirit and very essence of human rights protection that is the core mandate of this Honorable Commission.

⁶⁶⁴ Testimony of Mr. Carroll Muffett, TSN dated 23-24 May 2018, p. 20, also available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-May-23-to-24-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

⁶⁶⁵ *Article 649 of the New Civil Code* provides that, “[a] nuisance is any act, omission, establishment, business, condition of property, or anything else which: (1) injures or endangers the health or safety of others; or (2) annoys or offends the senses; or (3) shocks, defies or disregards decency or morality; or (4) obstructs or interferes with the free passage of any public highway or street, or any body of water; or (5) hinders or impairs the use of property. See case of *State of Rhode Island v. Chevron Corp., et al* (*supra* note 26), which is a case against numerous fossil fuel companies, including several of the respondents herein (e.g., Chevron, ExxonMobil, Royal Dutch Shell PLC, BP PLC, ConocoPhillips, etc.). The State of Rhode Island argued that defendants (major corporate members of the fossil fuel industry) caused an unreasonable interference with the right of the Rhode Island citizens to the use and enjoyment of public and private property in the state. Rhode Island maintained that defendants created, contributed to, and/or was a substantial contributing factor in the creation of public nuisance. The case’s current status is that, on 22 July 2019, the federal District Court for the State of Rhode Island granted the State’s motion to remand the suit to state court. Thus, the suit will be adjudicated according to Rhode Island’s laws and not federal laws.

⁶⁶⁶ *Article 110 of the Consumer Act of the Philippines* (Republic Act No. 7394), which protects consumers from false, deceptive, or misleading advertisements, stating that: It shall be unlawful for any person to disseminate or to cause the dissemination of any false, deceptive or misleading advertisement by Philippine mail or in commerce by print, radio, television, outdoor advertisement or other medium for the purpose of inducing or which is likely to induce directly or indirectly the purchase of consumer products or services (Article 110 of R.A. No. 7394 is available at https://www.lawphil.net/statutes/repacts/ra1992/ra_7394_1992.html [last accessed on 06 September 2019]). Also see: *Sections 1 to 3 of Act No. 3740*, otherwise known as “*An Act to Penalize Fraudulent Advertising, Mislabeling or Misbranding of any Product, Stocks, Bonds, Etc.,*” penalize the fraudulent advertising, mislabeling, or misbranding of any product. It states that no person, firm, or corporation may misrepresent “the character, value, properties or condition of any article offered or exposed for sale, barter, or exchange or of the materials of which said article is composed.” (Sections 1 to 3 of Act No. 3740 is available at http://laws.chanrobles.com/acts/7_acts.php?id=313 [last accessed on 06 September 2019]).

IX RECOMMENDATIONS AND WAYS FORWARD

But we are a developing country, as it was pointed out a while ago. We contribute very little to the carbon emissions, and yet we are the recipient of the harm done by carbon emissions that are produced by forty-seven (47) major carbon producers from the developed world.⁶⁶⁷

- Ms. Loretta Ann Rosales, Former Chair of the Commission on Human Rights of the Philippines (December 2018)

9.1. Given that the petitioners have conclusively established by evidence the responsibility of the respondent Carbon Majors for the climate-related human rights harms that have been -- and continue to be -- suffered by the petitioners and Filipinos more generally, the Honorable Commission must positively act according to its mandate to prevent further impacts, impairments, infringements, abuses, and/or violations of their fundamental rights (hereinafter, “human rights harms”).

9.2. Although the Honorable Commission is not a court of law, it is a tribunal of equity and has the ability to find the respondents responsible for the climate-related harms they have, individually or collectively as an industry, contributed to and continue to perpetuate. As discussed, the Honorable Commission is well within its authority to issue a *Resolution* addressing the following prayers in the *Petition* and additional reliefs as will be recommended and further elaborated in this section:

- a) Issue a finding on the responsibility of the respondent Carbon Majors for human rights impacts, impairments, infringements, abuses, and/or violations resulting from the effects of climate change in the Philippines;
- b) Host an official online repository of this National Inquiry’s full record that is searchable and accessible to all;
- c) Monitor people and communities in the Philippines made vulnerable to the impacts of climate change on an ongoing basis;

⁶⁶⁷ Testimony of Former Chair Loretta Ann Rosales, TSN dated 11-12 December 2018, p. 88, available at <http://chr.gov.ph/wp-content/uploads/2019/04/NICC-TSN-December-11-to-12-2018-Metro-Manila-Philippines.pdf> (last accessed on 12 September 2019).

- d) Request the respondent Carbon Majors to submit business plans regarding climate change that are consistent with both international and national human rights laws and requirements;
- e) Monitor respondent Carbon Majors on an ongoing basis and report periodically on whether respondents' actions are consistent with both international and national human rights laws and requirements;
- f) Recommend that policymakers and legislators develop and adopt clear and implementable objective standards for corporate reporting on human rights in the context of climate change;
- g) Recommend the adoption of one or more accountability mechanisms that provide an effective remedy that can be easily accessed by those affected by climate change;
- h) Recommend that the government develop a National Action Plan⁶⁶⁸ on business, environment, and climate change, using as a starting point the UNGPs and relevant pieces of evidence herein presented; and
- i) Recommend that governments -- including the Philippines and other countries where the respondent Carbon Majors are domiciled and/or operate -- enhance, strengthen, or explore new ways to fulfill their international duty of cooperation, including but not limited to, the introduction of further regulation of the Carbon Majors to fully address the human rights impacts of climate change.

9.3. The Honorable Commission is empowered by its mandate to be the vanguard of the movement to secure human rights in the face of the climate crisis. The Honorable Commission can make a significant contribution to this movement by standing up for all Filipinos, who bear the brunt of the impacts of climate change, despite having contributed the least to the problem. The petitioners respectfully pray for the Honorable Commission to take categorical and bold actions and issue the following recommendations.

⁶⁶⁸ Although the Philippines currently has *National Climate Change Action Plan* (NCCAP) from 2011-2028 (see <http://climate.emb.gov.ph/wp-content/uploads/2016/06/NCCAP-1.pdf> [last accessed on 06 September 2019]), the same is different from what petitioners envision and recommend -- as inspired by the proposal of expert witness and former Chair of this Honorable Commission, Ms. Loretta Ann Rosales -- since the National Action Plan will go beyond the NCCAP. See discussion in the body.

A. The Honorable Commission should issue a finding on the responsibility of the respondent Carbon Majors for human rights impacts, impairments, infringements, abuses, and/or violations resulting from the effects of climate change in the Philippines

9.4. The petitioners implore the Honorable Commission to issue a set of findings in its final *Resolution* that will support Filipino communities seeking and achieving climate justice. Based on the evidence and testimonies gathered during the course of the National Inquiry, the Honorable Commission, with due respect, should consider issuing this ultimate finding:

The respondent Carbon Majors are responsible for impacts, impairments, infringements, abuses, and/or violations of the human rights of the Filipinos, resulting from the effects of climate change. Through the extraction, marketing, and sale of coal, oil, and gas, and through past and current actions and/or inactions that have or continue to undermine climate science and solutions, the respondent Carbon Majors have and continue to directly and indirectly contribute to past, current, and future climate-related human rights abuses suffered by the Filipino people.

The respondent Carbon Majors have failed to fulfill their legal responsibility to respect and protect human rights by failing to avoid or actively contributing to adverse climate-related human rights impacts through their own activities and failing to address such harms when they occur by providing remedy. The respondent Carbon Majors have also failed to fulfill their legal responsibility in preventing, mitigating, and/or remedying the adverse climate-related human rights impacts that are directly linked to their operations, products or services through their business relationships.

The respondent Carbon Majors have a responsibility to urgently a) mitigate all climate pollution from their products and operations; b) remediate and compensate for losses and damages in the Philippines; and c) fund climate preparedness efforts in the Philippines. Continued failure of the respondent Carbon Majors to take these steps is unlawful and harms the fundamental human rights of the Filipino people.

9.5. In support of this conclusion, the Honorable Commission should take note of the following findings that have been substantially -- if not overwhelmingly -- established through the National Inquiry.⁶⁶⁹

A.1. Findings concerning its authority to conduct the National Inquiry

- a) The Honorable Commission had a clear mandate to conduct a National Inquiry into the claims raised by the petitioners in accordance with the *1987 Philippine Constitution* and national and international laws;⁶⁷⁰
- b) There is a clear nexus between the country of the Philippines and the human rights violations raised in the *Amended Petition* based on both the effects doctrine and the protective principle;⁶⁷¹ and
- c) The Philippines has obligations under various human rights treaties to provide access to a remedy for individuals and communities affected by human rights violations, which includes an effective investigation into the human rights violations alleged by the petitioners.⁶⁷²

A.2. Findings concerning climate science

- a) There is an overwhelming scientific consensus that human activity, primarily the burning of fossil fuels, is causing climate change;⁶⁷³
- b) The conclusions contained in the reports of the IPCC expressed as being “likely” or “very likely,” should be relied upon as fact in court proceedings (in order to satisfy the civil standard of proof) and for the purposes of the Honorable Commission’s National Inquiry and issuance of a *Resolution*;⁶⁷⁴

⁶⁶⁹ The Petitioners kindly acknowledge the recommendations contained in the *Joint Summary of the Amicus Curiae*. Many of the recommendations of findings in this memorandum use the exact language from the *Joint Summary of the Amicus Curiae*.

⁶⁷⁰ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 9.

⁶⁷¹ *Ibid.*

⁶⁷² *Ibid.*; ClientEarth *Amicus Brief*, paras. 37, 43 (citing U.N. Human Rights Office of the High Commissioner, Understanding Human Rights and Climate Change, Submission of the High Commissioner, Understanding Human Rights and Climate Change, Submission of the Office of the High Commissioner for Human Rights to the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change [2015], p.3).

⁶⁷³ Cook, J. *et al.*, *supra* note 69.

⁶⁷⁴ ClientEarth, *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 75.

- c) There is a linear and causal relationship between the concentrations of GHGs in the atmosphere and the median surface global temperatures, as well as ocean acidification;⁶⁷⁵
- d) Continued GHG emissions are likely to have continued and further aggravated effects on all natural systems and processes, including but not limited to, through rising temperatures, varied precipitation patterns, sea level rise, increased ocean acidification, and worsened extreme weather events;⁶⁷⁶
- e) Global average temperature rises of 1.5°C and 2°C will have severe implications for human rights;⁶⁷⁷
- f) Global average temperatures are already 1°C above pre-industrial levels,⁶⁷⁸ which is dangerous and causing human rights harms;
- g) Authoritative international and domestic scientific bodies, as well as an extensive body of peer-reviewed science, indicate that climate change is causing severe environmental, economic, and social impacts at current levels of planetary warming, and that these impacts will intensify with any additional warming;⁶⁷⁹
- h) If temperatures continue to increase at the current rate, a 1.5°C warming will be exceeded between 2030 and 2052;⁶⁸⁰
- i) This 0.5°C rise will increase widespread impacts, risks, and losses;⁶⁸¹
- j) A 1.5°C rise above pre-industrial levels could be enough to destabilize ice sheets, kill up to 90% of warm water corals, and cause severe problems to marine life, the Arctic and, of course, human beings;⁶⁸²
- k) The risks posed to health, livelihoods, food security, water supply, human security, and economic growth by climate

⁶⁷⁵ *Id.*

⁶⁷⁶ *Id.*

⁶⁷⁷ IPCC (2018): Summary for Policymakers, *supra* note 89.

⁶⁷⁸ IPCC (2018) Summary for Policymakers, *supra* note 89, Sec A1.1 p. 4.

⁶⁷⁹ Hansen, Our Children's Trust, Plan B, Sabin Center for Climate Change Law, Trenberth, *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 9.

⁶⁸⁰ IPCC (2018) Summary for Policymakers, *supra* note 89, Sec A.1. p. 4.

⁶⁸¹ *Id.*, Sec. A.1.3 p. 4, B.1.1 p. 7.

⁶⁸² *Id.*, Sec. B.4. p. 8.

change are expected to increase with global warming at 1.5°C and increase further with 2°C.⁶⁸³

- l) Rapid, large-scale emissions reductions and natural carbon sequestration are urgently needed to meet the *Paris Agreement*'s temperature goals or more stringent science-based climate recovery targets;⁶⁸⁴
- m) The faster emissions are cut significantly, the greater the reduction in warming and related risks and costs;⁶⁸⁵
- n) Adaptation to climate change is essential and requires assessing vulnerability and possible impacts, building resilience, and planning for the consequences.⁶⁸⁶
- o) The respondent Carbon Majors, together and individually, have extracted, marketed, and sold a substantial percentage of the fossil fuels burned globally, releasing an immense amount of carbon pollution into the Earth's atmosphere, which is currently interfering with the climatic system;⁶⁸⁷
- p) There is a clear link between respondent Carbon Majors' climate pollution and global impacts, such as surface temperature and sea-level rise, which in turn has resulted in -- and will continue to result in -- climate damage in the Philippines;⁶⁸⁸ and
- q) The CO₂ and methane emissions linked to 50 investor-owned Carbon Majors, including emissions from all the of respondents named in the *Petition*, contributed to roughly 16% of the global average temperature increase from 1880 to 2010, and around 11% of the global sea-level rise during the same time frame; and from 1980 to 2010, a time period when fossil fuel companies were acutely aware that their products were causing global warming, these same companies contributed approximately 10% of the global average temperature increase and about 4% sea level rise.⁶⁸⁹

⁶⁸³ *Id.*, Sec. B.5. p. 9.

⁶⁸⁴ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 9.

⁶⁸⁵ Greenpeace Southeast Asia (2018), *Holding Your Government Accountable for Climate Change: A People's Guide*, p. 33, available at https://storage.googleapis.com/planet4-international-stateless/2018/12/4fdd4d8a-peoples_guide_fnl_2.pdf (last accessed 12 September 2019).

⁶⁸⁶ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 10.

⁶⁸⁷ Exhibit "VVVV" to "VVVV-14," *supra* note 283.

⁶⁸⁸ Exhibit "RRRRRRRR" to "RRRRRRRR-12," *supra* note 284.

⁶⁸⁹ Exhibit "H," *supra* note 556.

A.3. Findings concerning human rights and climate change

- a) Climate change is a human rights issue and must be addressed in order to permit the full enjoyment of all fundamental human rights in the Philippines;⁶⁹⁰
- b) There is international recognition that climate change is already affecting people's lives, the effective enjoyment of human rights, and the ecosystems humans rely on;⁶⁹¹
- c) Communities in the Philippines have demonstrated through written and oral testimonies that climate impacts are affecting the full enjoyment of their human rights;⁶⁹²
- d) The harmful effects of climate change pose a tremendous threat to human rights in the Philippines. Increases in the severity and frequency of sudden-onset disasters, such as typhoons and floods, already have and will continue to cause deaths, injuries, property destruction, and human displacement, while more gradual forms of environmental degradation will undermine access to clean water, food, and other key resources;⁶⁹³
- e) These impacts will impair fundamental rights, including the rights to dignity, life, a clean and healthy environment, health, clean water and sanitation, food, adequate housing, self-determination and development, and equality and non-discrimination. The impacts will disproportionately affect certain countries, such as the Philippines, and individuals, including those who are in disadvantaged situations due to poverty, gender, age, disability, cultural or ethnic background, and other factors, as well as children and future generations who will experience increasingly severe impacts over time;⁶⁹⁴ and
- f) The impacts of climate change threaten human dignity directly, by altering the environment in which humans live, and indirectly, by threatening peoples' ability to enjoy and exercise the full range of their human rights. The rights affected by climate change are all connected to the right to

⁶⁹⁰ Naidoo, K. *supra* note 628.

⁶⁹¹ Bachelet, M. (2018), *Open-Letter from United Nations High Commission on Human Rights on integrating human rights in climate action*, available at <https://www.ohchr.org/Documents/Issues/ClimateChange/OpenLetterHC21Nov2018.pdf>, (last accessed on 12 September 2019).

⁶⁹² See statements and testimonies of all the community witnesses.

⁶⁹³ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 9.

⁶⁹⁴ *Ibid.*

human dignity; and the protection of human dignity requires averting catastrophic climate change.⁶⁹⁵

A.4. Findings concerning respondent Carbon Majors' knowledge and actions and/or inactions in light of foreseeable climate risks

- a) At all relevant times, the respondent Carbon Majors can and should be presumed to be experts in all aspects of the products they produced, manufactured, marketed or otherwise put into the stream of commerce;⁶⁹⁶
- b) The fossil fuel industry was or should have been aware that fossil fuel combustion could alter the global climate by the early 20th century;⁶⁹⁷
- c) By no later than the 1960s, the fossil fuel industry was actively engaging in climate science and had actual knowledge of the grave dangers posed to people by climate change arising from the use of their fossil fuel products;⁶⁹⁸
- d) In the 1970s, the fossil fuel industry began to publicly question the legitimacy of climate science, as a business tactic, while internally their own scientists repeatedly warned of climate risks;⁶⁹⁹
- e) By the 1980s, the fossil fuel industry knew there was broad scientific consensus that climate change was real, was caused by fossil fuel consumption, and would have significant impacts on the environment and human rights;⁷⁰⁰
- f) In the 1990s, following the establishment of the IPCC and the start of the global climate negotiations, the fossil fuel industry ran full blown campaigns that manufactured doubt about climate science, concealed the foreseeable human impacts of using fossil fuel products, and delayed meaningful action;⁷⁰¹

⁶⁹⁵ Daly, E., TSN dated 27-28 September 2018, *supra* note 379.

⁶⁹⁶ Exhibit "GGGGG" to "GGGGG-35," *Profile and Statement of Carroll Muffett*, *supra* note 141.

⁶⁹⁷ Part V (D), p. 41.

⁶⁹⁸ Part V (D), pp. 41-46.

⁶⁹⁹ Part V (D), pp. 46-48.

⁷⁰⁰ Part V (D), pp. 48-52.

⁷⁰¹ Part V (D), pp. 52-59.

- g) From the entry into force of the *Kyoto Protocol* to the adoption of the *Paris Agreement*, the fossil fuel industry's attack on climate science and solutions continued unabated;⁷⁰²
- h) Following the adoption of the *Paris Agreement* in 2015 and the publication of the *IPCC's SR 1.5°C* in 2018, the corporate action continued to demonstrate an intent to put profit over people;⁷⁰³ and
- i) Even today, the respondent Carbon Majors' business models, investments, and activities are inconsistent with climate science and purported commitments to human rights and climate change.⁷⁰⁴

A.5. Findings concerning the obligations of the Philippine Government

- a) The Philippine government has an obligation to respect, protect, and fulfill human rights, including the right to a healthful and balanced ecology and a safe climate. Human rights norms provide a framework for understanding how States should respond to climate change in order to meet their legal obligations;⁷⁰⁵
- b) States' obligations to address environmental harm that interferes with the full enjoyment of human rights extends to harm caused by the impacts of climate change;⁷⁰⁶
- c) The Philippine government is obligated to contribute to efforts, to the best of its ability, to keep global average temperatures to a level that avoids dangerous anthropogenic interference with the climate system, as evidenced by the best available science;⁷⁰⁷
- d) Human rights law imposes wide-ranging obligations upon States to protect the human rights of individuals from infringements by third parties, including corporations;⁷⁰⁸
- e) States have an obligation to respect, protect, and fulfill human rights, and this obligation includes actively

⁷⁰² Part V (D), pp. 59-62

⁷⁰³ Part V (D), pp. 62-63

⁷⁰⁴ Part V (D), pp. 63-65; Also see Annexes "D" and "E" hereof.

⁷⁰⁵ APF & GANHRI, CIEL, ClientEarth, ELAW, Maastricht Principles Drafting Group, Our Children's Trust, Plan B, *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 10.

⁷⁰⁶ *Ibid.*

⁷⁰⁷ *Ibid.* p. 53.

⁷⁰⁸ *Ibid.* p. 50.

preventing persons within their jurisdiction against human rights abuses as a result of the conduct of corporate actors headquartered outside of their territory, such as by providing access to an effective remedy;⁷⁰⁹ and

- f) As part of its “sovereign public trust obligations” and obligations to respect, protect, and fulfill human rights, the Philippine government should seek natural resource damages from the Carbon Majors for the harm done to the atmosphere and the climatic system.⁷¹⁰ The natural resource damage should be used to transparently fund a just transition for workers in the fossil fuel industry in the Philippines; climate research as independently identified by the country’s leading government and academic institutions, and adaptation, resiliency and emergency preparedness efforts; and mitigation measures, including renewable energy and natural climate solutions, to support the country’s ability to meet its international climate commitments under the UNFCCC and *Paris Agreement*.

A.6. Findings concerning responsibility under the UNGPs and international jurisprudence

- a) The Honorable Commission should take a purposive and holistic approach to applying human rights standards to the respondent Carbon Majors;⁷¹¹
- b) Businesses have the responsibility to respect and protect human rights, as described in the UNGPs and international jurisprudence;⁷¹²
- c) The UNGPs require enterprises to assess, address, and take responsibility for the climate-related human rights impacts of their products and operations;⁷¹³
- d) Given the significant human rights impacts of climate change, the UNGPs apply to companies’ direct and

⁷⁰⁹ *Ibid.*, pp. 47-50.

⁷¹⁰ *Ibid.*, p. 54.

⁷¹¹ *Id.* p. 10.

⁷¹² *Id.* p. 61, citing *Kaliña and Lokono Peoples v. Suriname*, Inter-Am. Ct. H. R., Judgment (Merits, Reparations, and Costs), par. 224 (25 November 2015), available at http://www.corteidh.or.cr/docs/casos/articulos/seriec_309_ing.pdf (last accessed on 12 September 2019); *Urbaser S.A. & Consorcio de Aguas Bilbao Bizkaia, Bilbao Biskaia Ur Partzuergoa v. The Argentine Republic*, ICSID Case No. ARB/07/26, Award, par. 1999 (08 December 2016); Case against New TV S.A.L. and Karma Mohamed Tahsin al Khayat, STL-14-05/PT/AP/ARI26.1, Decision on Interlocutory Appeal Concerning Personal Jurisdiction in Contempt Proceedings, Special Tribunal for Lebanon, par. 46 (02 October 2014).

⁷¹³ ClientEarth, *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 76.

indirect GHG emissions and actions and inactions with respect to climate science, actions, and solutions;⁷¹⁴

- e) In accordance with the UNGPs, communities affected by climate change are key stakeholders for business human rights due diligence;⁷¹⁵
- f) In order to comply with the responsibility to respect and protect human rights, the respondent Carbon Majors must take all steps to i) mitigate all climate pollution from their products and operations; ii) remediate climate harm, including paying for loss and damage in the Philippines; and iii) fund climate preparedness efforts in the Philippines;

A.6.1. Mitigation

- g) Since the human rights of Filipinos are already impaired at current levels of warming, the full enjoyment of human rights requires the respondent Carbon Majors to take measures that will contribute to not only meeting, but exceeding, the targets set out in the *Paris Agreement*.⁷¹⁶ The respondents should be aware that aligning with less stringent standards, such as 2°C and 1.5°C, “would deny all Filipinos the opportunity to fully vindicate their fundamental rights in the context of climate change;”⁷¹⁷
- h) The respondents must take responsibility for the actual, real emissions from its products and operations, and not the company’s “net carbon footprint;”⁷¹⁸
- i) The respondents have a responsibility to begin conducting a just and managed decline of the fossil fuel industry that

⁷¹⁴ *Id.* p. 63-65.

⁷¹⁵ *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 64-65.

⁷¹⁶ As shown in the IPCC 1.5 SR and IPCC SRCCL, while there is no safe level of warming, significant harms would result even with limiting temperature rise at 1.5C warming, and precautionary principles demands that preventative action to keep temperature to a much lower threshold, as current levels of warming already impact Filipino’s human rights. Our Children’s Trust recommends that Honorable Commission “clearly state the scientific standard States and Carbon Majors must meet to protect public trust and fundamental human rights: reduce dangerous levels of atmospheric CO2 to below 350 ppm by 2100 in order to limit the long-term average global temperature increase to less than 1°C above preindustrial temperatures. Adopting less stringent standards, such as those contained within the Paris Agreement, would deny all Filipinos the opportunity to fully vindicate their fundamental rights in the context of climate change, *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 55.

⁷¹⁷ Our Children’s Trust, *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 77.

⁷¹⁸ Muttitt, G. (2019), *Shell Emissions Still Going Up Despite Accounting Device*, *supra* note 611.

ensures a just transition for the workers and communities that depend on it;⁷¹⁹

- j) The respondents have a responsibility to stop investing in and developing all new fossil fuel projects (oil and gas fields and coal mines);⁷²⁰

A.6.2. Remediating loss and damage

- k) Filipino communities are already being harmed by climate change. Even with the best possible future mitigation efforts, vulnerable countries such as the Philippines will still have to deal with significant loss and damage;
- l) The government of the Philippines, local government units, and taxpayers are covering the significant costs of climate change;⁷²¹ and
- m) Respondents should pay for their fair share of the damage that is occurring at 1°C and will continue to occur even if temperature rise is kept to 1.5°C above pre-industrial levels.

A.7. Findings concerning fundamental principles of legal and moral responsibility

- a) Under fundamental principles of responsibility that are common to judicial systems around the world, liability for civil and/or human rights wrongs can be established by demonstrating: i) knowledge or notice of potential harms, including whether the harms were reasonably foreseeable; ii) the opportunity to avoid or reduce those harms; and iii) whether the actions or inactions of the respondents caused or contributed to the harm;⁷²²

⁷¹⁹ Muttitt, G. *The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production*, Oil Change International, available at <http://priceofoil.org/2016/09/22/the-skys-limit-report/> (last accessed on 12 September 2019).

⁷²⁰ *Id.*

⁷²¹ As an example, see the estimated cost of super typhoon Haiyan in this official report made by the National Disaster Risk Reduction and Management Council (06-09 November 2013), *Final Report re Effects of Typhoon "Yolanda" (Haiyan)*, available at http://www.ndrrmc.gov.ph/attachments/article/1329/FINAL_REPORT_re_Effects_of_Typhoon_YOLAND_A_HAIYAN_06-09NOV2013.pdf (last accessed on 12 September 2019) and also see Rupp, L., (18 November 2013), *Haiyan to Cost Insurers Sliver of \$14.5 Billion Estimated Damage*, available at <https://www.bloomberg.com/news/articles/2013-11-17/haiyan-to-cost-insurers-sliver-of-14-5-billion-damage-estimate> (last accessed on 12 September 2019).

⁷²² Muffett, C., *supra* note 141, pp. 9-13.

- b) The fossil fuel companies had early awareness, notice, and actual knowledge of the role of coal, oil, and gas in causing climate change and the reasonably foreseeable human rights harms resulting from its impacts;⁷²³
- c) Fossil fuel companies had the opportunity to avoid or reduce those harms decades ago. Instead of reducing carbon pollution from products and activities, many of the respondent Carbon Majors knowingly advanced or promoted deliberately misleading information, casting doubt on climate science and actions. The respondent Carbon Majors have and continue to materially contribute to the climate damage and human rights impacts;⁷²⁴
- d) The “Polluter Pays” principle is widely accepted and should be applied to respondent Carbon Majors, which reap vast profits from their polluting activities;⁷²⁵
- e) Communities have the right to hold the respondent Carbon Majors accountable for the climate harms they are suffering; and
- f) In order to avoid additional liability, the respondents must take immediate and proactive measures in accordance with the actions outlined above.

B. The Honorable Commission should host an official online repository of this National Inquiry’s full record that is searchable and accessible to all

9.6. In conducting this National Inquiry on the intertwined issues of climate change and human rights, the Honorable Commission has already taken a progressive and positive leap towards helping the Filipinos and the public, in general, who deserve to know the truth. By uploading the National Inquiry’s official transcript of stenographic notes (TSNs) in the Honorable Commission’s website,⁷²⁶ the Honorable Commission made it possible for Filipinos -- wherever situated -- to benefit from the petitioners’ efforts to realize the full enjoyment of their human rights by seeking freedom from the climate-polluting activities of the respondents.

⁷²³ CIEL, Plan B, *Joint Summary of the Amicus Curiae*, *supra* note 50, pp. 67-71.

⁷²⁴ *Id.*

⁷²⁵ APF & GANHRI, CIEL, ClientEarth, Plan B, *Joint Summary of the Amicus Curiae*, *supra* note 50, p. 10.

⁷²⁶ See Transcripts of Stenographic Notes of the NICC-CHR-PH’s Public Hearings of 2018, available at <http://chr.gov.ph/nicc-resources/> (last accessed on 12 September 2019).

9.7. Now, the Honorable Commission has another significant opportunity to aid communities, judiciaries, national human rights institutions, administrative agencies, and other stakeholders by sharing the full record of the National Inquiry, which includes all the pieces of evidence it has gathered, in a user-friendly and searchable database or website accessible to all. The contents should also include all the documents in the following websites which were mentioned in the proceedings and are relevant to the National Inquiry:

1. <https://www.smokeandfumes.org>;
2. <http://www.climatefiles.com>; and
3. <https://www.industrydocuments.ucsf.edu/fossilfuel/>

9.8. With this, the Honorable Commission will be providing an essential resource that is necessary for the protection of human rights. More importantly, it will help deliver justice to the community witnesses, who bravely testified against some of the biggest companies in the world, by preserving their stories of climate injustice and hope for a better future, which will be remembered for the historical record, for legislating meaningful laws, and for understanding what justice could look like. There are a number of academic institutions in the Philippines and worldwide that would likely be willing to assist with this important service for humanity.

C. The Honorable Commission should monitor people and communities vulnerable to the impacts of climate change on an ongoing basis

9.9. The National Inquiry has heard from representatives of the following communities in Luzon, Visayas, and Mindanao through visits, dialogues, and oral testimonies during the public inquiry hearings: (a) Libon, Albay; (b) Legazpi, Albay; (c) Tacloban City; (d) Tanauan, Leyte; (e) Province of Isabela; (f) Alabat, Quezon; (g) Iligan City; (h) Bukidnon; (i) Cagayan de Oro City; (j) Batangas City (Verde Island Passage); (k) Bataan; (l) Benguet, Ifugao Province; (m) Camarines Norte; (n) Marikina; (o) Rizal; and (p); Kamotes Island, Cebu. The Honorable Commission should set up a system to continuously and regularly monitor them, along with other communities in the Philippines which were found to be vulnerable to the impacts of climate change.

9.10. In its monitoring function, the Honorable Commission should conduct community visits, record testimonies from focused group discussions and/or key informant interviews, provide capacity building for local government units in assessing and documenting climate damage, and provide legal assistance to community members continuing to suffer from climate-related human rights impacts.

9.11. To be meaningful though, the first step to the long-term monitoring of the human rights impacts of climate change is establishing a **baseline**, *i.e.* defining and understanding the target of the monitoring. Specifically, the Honorable Commission must look into the following three elements: (1) the communities it seeks to monitor; (2) the hazards the communities face; and (3) the instruments protecting the communities' rights and properties.

9.12. To identify the communities acutely vulnerable to the impacts of climate change, the Honorable Commission must take its cue from the testimonies of the experts regarding this and look into the population's demographics, economic activity, health, education, the existing infrastructure in the area, and the area's history of extreme weather events and past efforts to rebuild after a disaster.

9.13. Hazards in this context are dangers and threats faced by the community, including those exacerbated by climate change, such as changes in temperature, relative humidity, solar, radiation, wind, and precipitation, and climate-induced disasters, such as floods and droughts. A hazard analysis must include the existing policies, strategies, plans, and actions by the local and/or national government designed to prevent further damage from recurrent extreme weather events.

9.14. Instruments protecting the communities' rights and properties include national laws, legislation, regulations, and international conventions. The Honorable Commission must analyze the effectiveness of these instruments in safeguarding the community and, later on, determine whether these instruments must be adopted or if new ones need to be created.

9.15. In its monitoring, the Honorable Commission should look into convening a multidisciplinary team of specialists with competence in health, psychosocial services, disaster risk reduction and management, housing, transportation, livelihood and welfare, energy, environment (terrestrial, aquatic, or marine), and climate change impact monitoring. The skills of each individual in the team must be tailored to the community whose vulnerability they are monitoring. Transparent and participatory nature of monitoring must also include representatives from communities, and monitoring results must be disclosed to communities and all stakeholders.

9.16. The Honorable Commission should also consider convening a group of public and private stakeholders, including representatives from communities, that can take action once the multidisciplinary team of specialists delivers its monitoring reporting. To be more effective, the stakeholder groups should create organizational and operational structures

and procedures for developing actions to safeguard the communities and help them adapt to the impacts of climate change.

9.17. Finally, the Honorable Commission should produce a yearly report summarizing its activities and findings. It should be distributed to the relevant national and local government entities, the petitioners, and respondent Carbon Majors and it should be made publicly available.

D. The Honorable Commission should direct respondent Carbon Majors to submit business plans regarding climate change that are consistent with the UNGPs and general principles of legal and moral responsibility

9.18. The respondent Carbon Majors have a responsibility to take urgent and ambitious actions that: (a) make Filipinos aware of the dangers posed by climate change; (b) reduce and mitigate the risks posed to Filipinos by their climate polluting coal, oil, and gas products; (c) advance appropriate technical, process, or policy solutions to climate change; (d) prevent human rights abuses and violations of the rights of Filipinos resulting from climate change; and (e) remedy past and existing human rights harms of Filipinos resulting from climate change.⁷²⁷

D.1. In order to make Filipinos aware of the dangers posed by climate change, the respondent Carbon Majors must:

- a) Acknowledge, in their respective statements of policy created under *Principle 16 of the UNGPs*, the impact of climate change on the exercise of human rights since they first became aware of the potential climate risks and into the future;⁷²⁸
- b) Ensure climate change as a human rights matter is included in their human rights due diligence processes undertaken in accordance with *Principle 17 of the UNGPs*;⁷²⁹
- c) Identify and assess the specific human rights impacts of climate change arising from their operations and products, in a process that draws on human rights expertise and

⁷²⁷ *Joint Summary of the Amicus Curiae*, *supra* note 50, pp. 69-70.

⁷²⁸ *Id.* p. 64.

⁷²⁹ *Id.*

involves meaningful consultation with potentially affected groups and other relevant stakeholders in the Philippines, in accordance with *Principle 18 of the UNGPs*;⁷³⁰

- d) Take action to mitigate the greenhouse gas emissions from their operations and products⁷³¹ in line with the best available science, in accordance with *Principle 13 UNGPs*; and
- e) Track the effectiveness of their response by fully reporting on their total greenhouse gas emissions (including across the full life-cycle of their products), as well as proposed actions to mitigate their emissions into the future, including appropriate emissions reduction targets and investments into renewable energy. This should be transparently produced and documented, in order to fully comply with *Principles 20-21 of the UNGPs*.⁷³²

D.2. In order to reduce, mitigate, and prevent the risks their climate polluting products pose to the Filipino people, the respondent Carbon Majors must communicate in their plans the following:

- a) How they are aligning their business models to a global average temperature level -- as supported by the best available science -- that avoids or minimizes dangerous anthropogenic interference with the climate system or, at the very minimum, with a carbon budget that provides the greatest possibility of meeting the politically agreed 1.5°C temperature goal in the *Paris Agreement*;
- b) An acknowledgement that aligning with standards that exceeds the current level of warming at 1°C -- such as 2°C, well-below 2°C, and 1.5°C -- would deny the opportunity for all Filipinos the opportunity to fully vindicate their fundamental rights in the context of climate change, given that Filipinos are already experiencing climate-related harms;⁷³³

⁷³⁰ *Id.* pp. 64-65.

⁷³¹ *Id.* p. 65.

⁷³² *Ibid.*

⁷³³ *Id.* p. 77.

- c) The actual, real emissions from its products and operations, and not just the company's "net carbon footprint;"⁷³⁴
- d) What steps they are taking to commence a just and managed decline of the fossil fuel industry that ensures a just transition for the workers and communities that depend on it;⁷³⁵ and
- e) Whether they are investing in any new fossil fuel projects,⁷³⁶ and how much they are investing into renewable energy.

D.3. In order to advance appropriate solutions to climate change that will improve the lives and livelihoods of Filipinos, the respondent Carbon Majors must:

- a) Renounce disinformation on climate science and policy;⁷³⁷
- b) Publish company policies and procedures governing lobbying, both direct and indirect, and grassroots lobbying communications on domestic climate-related legislation and international policy including the companies' positions on specific climate-related measures such as: (i) climate science and research, (ii) renewable energy targets; (iii) vehicle fuel efficiency standards; (iv) fossil fuel production and consumption subsidies including tax breaks; (v) climate finance; (vi) mitigation, (vii) adaptation, (viii) loss and damage; and (ix) other related measures;⁷³⁸
- c) Publicly support ambitious climate policies, including measures to keep coal, oil, and gas in the ground; and
- d) Provide a process by which they will fully disclose climate-related risks of their business to all stakeholders, including communities affected by climate change.

⁷³⁴ See e.g. Muttitt, G. (2019), *Shell Emissions Still Going Up, Despite Accounting Device*, *supra* note 611.

⁷³⁵ See e.g. Muttitt, G. *The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production*, *supra* note 719.

⁷³⁶ *Id.*

⁷³⁷ Union of Concerned Scientists (2018), *supra* note 219.

⁷³⁸ *Petitioners' Consolidated Reply*, pp. 58-59, also available at https://secured-static.greenpeace.org/seasia/ph/PageFiles/735291/Human_Rights_and_Climate_Change_Consolidated_Reply_2_10_17.pdf?_ga=2.245089797.1407701369.1568551817-1204342681.1567606580 (last accessed on 12 September 2019).

D.4. In order to remedy past and existing human rights abuses and violations of the rights of the Filipino people resulting from climate change, the respondent Carbon Majors' plans must:

- a) Communicate commitments to abide by the "Polluter pays" principle;⁷³⁹ and
- b) Provide a mechanism to pay their fair share of the costs of climate-related damages and climate change adaptation.⁷⁴⁰

E. The Honorable Commission should monitor respondent Carbon Majors on an ongoing basis and report periodically on whether respondents' actions are consistent with both international and national human rights laws and requirements

9.19. Petitioners respectfully submit that the Honorable Commission's mandate to monitor human rights violations in the context of climate change includes not only the victims, but also those responsible for human rights harms (e.g., the respondent Carbon Majors). Thus, in addition to the aforementioned guidelines for monitoring, which can similarly be adopted for respondent Carbon Majors and other business enterprises or entities that contribute to climate-related human rights harms, the Honorable Commission should ensure an ongoing monitoring of the activities of the respondents and said entities and periodically report their actions and/or inactions that are not consistent with both international and national human rights laws and requirements.

⁷³⁹ Center for International Environmental Law, *ClientEarth*, *Asia Pacific Forum of National Human Rights Institutions & Global Alliance of National Human Rights Institutions*, *Environmental Law Alliance Worldwide*, Dr. James E. Hansen, *Our Children's Trust*, *Maastricht Principles Drafting Group* (Olivier De Schutter, Asbjørn Eide, Ashfaq Khalfan, Rolf Künemann, Jernej Letnar Čerňič, Marcos A. Orellana, Ian Seiderman, Bret Thiele), *Sabin Center for Climate Change Law, Columbia Law School*, Dr. Kevin Trenberth, *Joint Summary of the Amicus Curiae Briefs*, *supra* note 50, p. 59.

⁷⁴⁰ See similar recommendation for remediation: Knox, J., TSN dated 27-28 September 2018, p. 110, *supra* note 511 and Serrano, S., TSN dated 23-24 May 2018, *supra* note 445, p. 145.

F. The Honorable Commission should recommend that policymakers and legislators to develop and adopt clear and implementable objective standards for corporate reporting of human rights in the context of climate change

9.20. The petitioners submit that, since the risks of climate change are material for shareholders and stakeholders, including communities at risk, reporting should be mandatory in the Philippines. These risks should at least be evaluated based on two scenarios where, at a minimum, warming is kept 1.5°C (as committed to by States under the *Paris Agreement*), and where warming is kept to 1°C (since current warming is already leading to human rights harms), above pre-industrial levels.

9.21. Any climate risk reporting law should encompass both financial and non-financial risks; ensure that such disclosure is meaningful, substantive and reliable; and comprehensively cover risks posed by listed companies. Importantly, information concerning business relationships with trade associations or other organizations that advocate for or against climate change are material and should be subject to disclosure. Company pledges purporting to reduce GHG emissions are worthless if the companies continue to support groups that undermine climate change advocacy.

9.22. The disclosure to be made by the companies must state their past and present efforts to address the impacts of climate change on vulnerable communities, as well as their investments in new coal, oil, and gas projects and renewable energy.

9.23. Finally, the obligation to disclose these risks should be enforced through a proper agency, such as the Securities and Exchange Commission which generally regulates and monitors companies. Rigorous enforcement of disclosure requirements is necessary in order to allow the financial and other impacts of climate change risks to be fully understood.

G. The Honorable Commission should recommend the adoption of one or more accountability mechanisms that provide an effective remedy that can easily be accessed by those affected by climate change

9.24. It is the obligation of the Philippine government to protect peoples' rights by regulating non-state actors, like companies or business

enterprises. The Honorable Commission should recommend that the Philippine Congress adopt and implement legislation that provides effective remedies to people suffering harm and “exact accountability from non-state actors,” including the respondent Carbon Majors.⁷⁴¹

9.25. To put this into fruition, the Honorable Commission should recommend the Philippine Congress adopt a **Climate Justice Act**. In light of the significant contribution of oil, gas, and coal companies to anthropogenic climate change and its adverse effects, the need to extend accountability for human rights violations to private persons or entities is well-established human rights law.⁷⁴² Furthermore, the Honorable Commission should acknowledge that “the right to a remedy is an inalienable human right of all Filipinos and that the Philippines has undertaken international obligations to ensure this right.”⁷⁴³

9.26. The Honorable Commission can take into consideration a Climate Compensation model shared by expert witness Dr. Margaretha Wewerinke-Singh entitled, “*Taking Climate Justice into Our Own Hands: A Model Climate Compensation Act*.”⁷⁴⁴

9.27. Based on well-established legal principles, the Act, among others, should clarify:

- a) The causes of actions;⁷⁴⁵
- b) Jurisdiction (national courts have jurisdiction over climate-related damages occurring within their national boundaries);⁷⁴⁶
- c) Plaintiffs (e.g. individuals, communities, Indigenous Peoples, local governments);⁷⁴⁷
- d) Defendants (e.g. major producers and emitters);⁷⁴⁸
- e) Causation (Model Act suggests, “evidence that climate change has doubled the likelihood of that type of event occurring will be sufficient to show on

⁷⁴¹ Rosales, L., TSN dated 11-12 December 2018, p. 89, *supra* note 667.

⁷⁴² See Exhibit “TTTTTTTTT” to “TTTTTTTTT-9,” *Statement of Resource Person, Dr. Margaretha Wewerinke-Singh*, dated 03 December 2018, p. 5.

⁷⁴³ *Id.* p. 6.

⁷⁴⁴ Exhibit “WWWWWWWW” to “WWWWWWWW-50,” Gage, A. and Wewerinke-Singh, M. (December 2015), *Taking Climate Justice into Our Own Hands: A Model Climate Compensation Act*.

⁷⁴⁵ See Exhibit “TTTTTTTTT” to “TTTTTTTTT-9,” *supra* note 742.

⁷⁴⁶ *Id.* pp. 6-7.

⁷⁴⁷ *Ibid.* p. 7.

⁷⁴⁸ *Ibid.* pp. 7-8.

a balance of probabilities that the event has been caused by climate change”⁷⁴⁹); and

- f) Remedies (e.g. damages, injunctive relief, and enforcement).⁷⁵⁰

H. The Honorable Commission should recommend that the Philippine government develops a National Action Plan on business, environment, and climate change, based on the UNGPs⁷⁵¹

9.28. To petitioners’ knowledge, the Philippine government has not embarked on the creation of a National Action Plan on business and human rights.⁷⁵² In light of the significant harms to human rights being suffered by the Filipino people as a result of climate change, a National Action Plan on business and human rights should cover environmental and climate change matters.

9.29. The Honorable Commission’s National Inquiry provides a baseline for such a plan. The process in developing the plan should be inclusive, *i.e.* “go to villages, go to the barangays.”⁷⁵³ Among other things, the plan needs to ensure equity on climate action and support the development of “coherent state policy on corporate reporting on [financial and] non-financial matters.”⁷⁵⁴

I. The Honorable Commission should recommend that governments -- including the Philippines and other countries where the respondent Carbon Majors are domiciled and/or operate -- enhance, strengthen, or explore new ways to fulfill their international duty of cooperation, including but not limited to, further regulation of the Carbon Majors to fully address the human rights impacts of climate change

⁷⁴⁹ See Exhibit “WWWWWWWWWW” to “WWWWWWWWWW-50,” *supra* note 744.

⁷⁵⁰ Wewerinke-Singh, M., *supra* note 742, p. 9.

⁷⁵¹ Rosales, L., TSN dated 11-12 December 2018, pp. 89-90, *supra* note 667.

⁷⁵² For more information, see National Action Plans on Business and Human Rights, available at <https://globalnaps.org/country/philippines/> (last accessed on 12 September 2019).

⁷⁵³ Rosales, L., TSN dated 11-12 December 2018, p. 90, *supra* note 667.

⁷⁵⁴ *Id.*, p. 91.

9.30. Under international law States, including the Philippines, owe a duty of cooperation. In the environmental context, cooperation is aimed at mitigating transboundary risks and emergencies and is closely connected with the obligation of prevention and the no-harm rule. It also includes the duty to consult and negotiate, and reflects the need for institutional cooperation.⁷⁵⁵

9.31. Considering the scale and nature of the climate crisis, combatting climate change and its impacts on people can only occur through international cooperation, as stated in the UNFCCC, the *Kyoto Protocol*, the *Paris Agreement* and in multiple other multilateral environmental agreements.⁷⁵⁶

9.32. Under *Article 6 of the Paris Agreement*, provision is made for voluntary cooperation among parties so that more ambitious nationally-determined contributions may be set. *Article 7 of the Paris Agreement* foresees a role for cooperation in strengthening national adaptation efforts. The *Paris Agreement* also envisages cooperation in technology development and transfer under *Article 10*. Finally, *Article 12* provides for cooperative efforts around climate change education, awareness, public participation, and public access to information.

9.33. The petitioners most respectfully pray that the Honorable Commission recommends the present administration to seek enhanced international cooperation on combatting the climate crisis, and encourages other States, especially States where respondent Carbon Majors are registered, to take steps to prevent, remedy, and eliminate human rights violations or threats of violations resulting from the impacts of climate change, or to seek a remedy through international mechanisms.

9.34. States should also cooperate and **“limit fossil fuel businesses and their industry associations from influencing climate, energy, and environmental policies, in light of their responsibility for the majority of emissions and their well-known efforts to subvert and deny scientific evidence of climate change. This is a key element of the WHO Framework Convention on Tobacco Control, which limits the involvement of tobacco companies in health policy,”** as stated in the U.N. Special Rapporteur’s *2019 UN Safe Climate Report*.⁷⁵⁷

⁷⁵⁵ Knox, J. (2018), *Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment*, Framework Principle 13, p. 15-16, <https://documents-dds-ny.un.org/doc/UNDOC/GEN/G18/017/42/PDF/G1801742.pdf?OpenElement> (last accessed on 12 September 2019)

⁷⁵⁶ United Nations Framework Convention on Climate Change (UNFCCC), Preamble, Articles 3, 4, 7 and 9; *Kyoto Protocol to the UNFCCC*, Article 2(b); *Paris Agreement* Articles 6, 7, 10, and 12.

⁷⁵⁷ UN Safe Climate Report, *supra* note 126, p. 21.

9.35. Finally, States should, *at a minimum*, cooperate and implement the recommendations by the U.N. Special Rapporteurs, including the recent *2019 UN Safe Climate Report*.⁷⁵⁸

9.36. Following the lead of young people in the Philippines (I am Climate Justice Movement)⁷⁵⁹ and Vanuatu (Pacific Island Students Fighting Climate Change)⁷⁶⁰ and the growing number of Pacific Island Leaders,⁷⁶¹ the Honorable Commission should also recommend that the Philippines support all diplomatic and legal efforts to obtain an Advisory Opinion for the International Court of Justice⁷⁶² on the obligation of States to protect the rights of present and future generations against the adverse effects of climate change.

X EPILOGUE

*Your Honors, while the Philippines adapts... while the Philippines will need to adapt to climate change, Your Honors, those who caused climate change, and I should say the industries and those countries and those governments that initiated this in the Industrial Revolution and did not institute environmental discipline so that they can have a mitigation program or mitigate the impacts on the environment, must perform mitigation in accordance with what climate science provides and demands. And not only that Your Honor, we are a victim. A crime has been committed against the environment and against our country and our people. And, therefore, it is my submission, Your Honor, that this party should make reparations to the victims of their actions.*⁷⁶³

- Undersecretary Segfredo R. Serrano (Undersecretary for Policy and Planning, Project Development, Research and Regulations of the Philippine Department of Agriculture), 24 May 2018 public hearing.

⁷⁵⁸ *Ibid.*

⁷⁵⁹ I am Climate Justice Movement Facebook page, available at <https://www.facebook.com/iamclimatejustice/> (last accessed on 12 September 2019).

⁷⁶⁰ Pacific Islands Students Fighting Climate Change Facebook page, available at <https://www.facebook.com/PISFCC/> (last accessed on 12 September 2019).

⁷⁶¹ Pacific Islands Forum Secretariat (13-16 August 2019), *Forum Communiqué, Fiftieth Pacific Islands Forum, Funafuti Tuvalu*, par. 16, available at <https://www.forumsec.org/wp-content/uploads/2019/08/50th-Pacific-Islands-Forum-Communique.pdf> (last accessed on 12 September 2019).

⁷⁶² A complementary recommendation to pursue a claim in the International Court of Justice (p. 4) was recommended by students who joined the students' competition conducted by the London School of Economics, Sterling University, and Environmental Science for Social Change, Inc., available at <https://www.business-humanrights.org/en/student-competition-what-recommendations-should-the-philippine-human-rights-commission-give-as-a-result-of-the-carbon-majors-inquiry-due-1-march-2019> (last accessed on 12 September 2019). The winning piece by Packman, C., *et al.* of Schulich School of Law entitled, "*The Carbon Majors Inquiry Student Competition*," showing useful recommendations, is available at <https://essc.org.ph/content/wp-content/uploads/2019/05/Carbon-Majors-Student-Competition.pdf> (last accessed 12 September 2019).

⁷⁶³ Serrano, S., TSN dated 23-24 May 2018, *supra* note 445, p. 145.

The right to live [and die] with dignity is the most fundamental right humans possess. It is the foundation on which all civil, political, and economic, social, and cultural rights stand. The standard for protecting this right should therefore be strictly and rigorously applied. When it is threatened by the actions of others -- as it is when the wrongful conduct of respondent Carbon Majors accelerates the climate crisis -- defending it should be the paramount concern of all.

The petitioners neither believe nor pretend that the Honorable Commission's decision will solve the climate crisis. However, holding the respondent Carbon Majors legally and morally responsible for their contribution to climate change is a significant step towards achieving climate justice.

To that end, the petitioners present the Honorable Commission with the opportunity to change the narrative of the Filipino people from one of victimhood to one of empowerment by holding those responsible to this climate crisis accountable.

Much has been said and argued in the last year since the Honorable Commission opened the first public hearings in March 2018. Ultimately, the petitioners' plea does not differ from the plea of children and others most exposed to the impacts of climate change around the world. As Greta Thunberg fiercely told the French Parliament on 23 July 2019:

The science is clear and all we children are doing is communicating and acting on that united science. Now political leaders in some countries are starting to talk. They are starting to declare climate emergencies and announcing dates for so-called climate neutrality. And declaring a climate emergency is good. But only setting up these vague, distant dates and saying things which give the impression of that things are being done and that action is on the way, will most likely do more harm than good. Because of the changes required are still nowhere in sight. Not in France, not in the EU, nowhere. **And I believe that the biggest danger is not our inaction. The real danger is when companies and politicians are making it look like real action is happening, when in fact almost nothing is being done, apart from clever accounting and creative PR.**

x x x

. . . Some people have chosen not to listen to us and that is fine. We are, after all, just children. **You don't have to listen to us, but you do have to listen to the united**

science, the scientists, and that is all we ask: Just unite behind the science.⁷⁶⁴

The same voice reverberates strongly and resonates well with Filipinos who likewise bear the brunt of the impacts of climate change. Ultimately, our vision for a more beautiful tomorrow is simple: it is one where the law advances justice and effectively protects human dignity. Because at the end of the day, human rights are experienced very personally: farmer without land, fisherman without catch, children without school books, mother without home. It is a world where each of us, and particularly those who are in the most vulnerable situations, have all they need to live their lives and flourish. Victory will be achieved when we have a world of dignity for all. As the poet Ms. Merlie M. Alunan reminds us:

*We merely borrow what we spend--
All: stone, hearth, fire, the burning wood,
Our very life -- a pact she understood,
In everything that be, in fear and love,
In terror and hope, word by leaf disclosed:*

*Child by the well-side many years ago
A knot of green sheaves twisting
Begging from the mountain a drink.⁷⁶⁵*

XI PRAYER

WHEREFORE, in order to be truly reflective of the proceedings and outcome of the National Inquiry, petitioners respectfully reiterate and amend their prayers as contained in the *Amended Petition* and the *Consolidated Reply*, to wit:

- a) Issue a finding on the responsibility of the respondent Carbon Majors for human rights impacts, impairments, infringements, abuses, and/or violations resulting from the effects of climate change in the Philippines;
- b) Host an official online repository of this National Inquiry's full record that is searchable and accessible to all;

⁷⁶⁴ Greta Thunberg speech at the National Assembly in Paris 2019-07-23, available at https://www.fridaysforfuture.org/greta-speeches#greta_speech_july23_2019 (last accessed on 06 September 2019); also see Greta Thunberg, *Address to the Parliament of the French Parliament on 23 July 2019*, available at <https://www.youtube.com/watch?v=ns54HAZgHvY> (last accessed on 12 September 2019).

⁷⁶⁵ Alunan, M., *Edith, Poems from Green Valley, Hearthstone, Sacred Tree* (Manila, Philippines: Anvil Publications, 1993).

- c) Monitor people and communities in the Philippines made vulnerable to the impacts of climate change on an ongoing basis;
- d) Request the respondent Carbon Majors to submit business plans regarding climate change that are consistent with both international and national human rights laws and requirements;
- e) Monitor respondent Carbon Majors on an ongoing basis and report periodically on whether respondents' actions are consistent with both international and national human rights laws and requirements;
- f) Recommend that policymakers and legislators develop and adopt clear and implementable objective standards for corporate reporting on human rights in the context of climate change;
- g) Recommend the adoption of one or more accountability mechanisms that provide an effective remedy that can be easily accessed by those affected by climate change;
- h) Recommend that the government develop a National Action Plan⁷⁶⁶ on business, environment, and climate change, using as a starting point the United Nations Guiding Principles on Business and Human Rights and relevant pieces of evidence herein presented; and
- i) Recommend that governments -- including the Philippines and other countries where the respondent Carbon Majors are domiciled and/or operate -- enhance, strengthen, or explore new ways to fulfill their international duty of cooperation, including but not limited to, the introduction of further regulation of the Carbon Majors to fully address the human rights impacts of climate change.

In addition, the above core prayers contained in petitioners' pleadings and in recognition of the dynamic procedure that the Honorable Commission adopted throughout the National Inquiry process, the petitioners respectfully pray that the Honorable Commission make clear findings of facts and recommendations as categorically set forth and elaborated in **Part IX (Recommendations and Ways Forward)** of this memorandum.

⁷⁶⁶ Although the Philippines currently has *National Climate Change Action Plan* (NCCAP) from 2011-2028 (see <http://climate.emb.gov.ph/wp-content/uploads/2016/06/NCCAP-1.pdf> [last accessed on 12 September 2019]), the same is different from what petitioners envision and recommend -- as inspired by the proposal of expert witness and former Chair of this Honorable Commission, Ms. Loretta Ann Rosales -- since the National Action Plan will go beyond the NCCAP. See discussion on the body.

Petitioners, likewise, pray for such other reliefs just and equitable under the premises.

Quezon City, Philippines, 19 September 2019.

By:



ATTY. GRIZELDA MAYO-ANDA

Legal Representative of the Petitioners

Environmental Legal Assistance Center

Carlos Sayang Compound, Mitra Road

Brgy. Sta. Monica, Puerto Princesa City

Tel. (048) 4335183, 7235183

Email: gerthie1987@gmail.com

Roll of Attorney No. 34830

IBP Lifetime No. 02123

PTR No. 1051489; 15 January 2019; Puerto Princesa

MCLE Exemption No. VI-002861; 02 May 2019 (valid until 14 April 2022)



ATTY. HASMINAH D. PAUDAC

Legal Representative of the Petitioners

Greenpeace Southeast Asia (Philippines)

Rooms 301-302 JGS Building

No. 30 Sct. Tuason, Bgy. Laging Handa

Diliman, Quezon City 1103

Tel. No. 3735307; Fax No. 3735306

Email: hpaudac@greenpeace.org

Roll of Attorney No. 58090

IBP Lifetime Member No. 014311

PTR No. 1250666; 10 January 2019; San Juan City

MCLE Compliance Certificate No. VI-0020559; 18 March 2019
(valid until 14 April 2022)