

RISING SEA LEVELS AND  
POTENTIAL CLIMATE REFUGEES  
—WITH SPECIAL REFERENCE  
TO THE CITY OF CHENNAI

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*Abstract*—The 21st century world has witnessed tremendous progress. Thanks to the advancements in science and technology that has made this possible. However, it's time to recognize and acknowledge the fact that the technology hasn't been on the same page with environment. The unprecedented climate crisis that we are into, indicates the chasm between environmental concerns and technological development. In 1972, the Declaration of the United Nations Conference on Human Environment was convened, and it laid down principles so as to strike a balance between environment and technology. Unfortunately, the erratic climatic patterns indicate the fact that the technological development has come at the cost of environment. This anthropocentric attitude has led to rise in earth's temperature, referred to as the global warming, which in turn has resulted in the rising sea levels. Among the countless coastal cities that can eventually submerge into the ocean, the city of Chennai in the State of Tamil Nadu is also included as per the 6th Assessment Report of Sea Level Projection prepared by the Intergovernmental Panel on Climate Change (IPCC). This report has predicted the increase in sea level in Chennai from 0.04m in 2020 to an estimated rise to 1.03m in 2150. More alarming is the status of the people residing in the city. Many people have already moved to different locations owing to the unprecedented flooding's that inundated several parts of the city. At this backdrop, the question that needs to be answered is whether these

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*people can be deemed as potential climate refugees. Given the fact that the current international framework concerning refugees is silent on climate refugees, this research paper will analyze the need to broaden the scope of the term 'refugees' so as to include the climate refugees who get displaced owing to the climatic conditions.*

**Keywords:** Climate Change, Global Warming, Climate Refugees, Rising Sea Levels, Anthropocentrism

## I. INTRODUCTION

The 21<sup>st</sup> century world is characterized by massive advancements in science and technology. The developments unfortunately, has failed to take into consideration the concerns of the environment. That is made evident by the growing environment consciousness, not only in India, but around the globe at large. In fact, the whole arena of International Environmental Law took shape post 1950s and the Stockholm Declaration, 1972 is indeed seen as a game changer that blew the lid surrounding the conflict between environment and development. The principles as contained in the Declaration clearly highlights the need to follow the sustainable eco-centric approach rather than the anthropocentric approach that can eventually lead to serious environmental crisis. The present-day situation will communicate the fact that, not all is well within Mother Nature. Somewhere, we the humans, have collectively gone wrong to safeguard our Earth, and we are facing the consequences for the same. Among the manifold problems that we encounter, one serious issue is the rising sea levels. It is a matter of common knowledge that the earth that we live in is covered 71 % by water and 29 % by the land surface. Making worse, the fact is the issue of rising sea levels that happen *inter alia* due to the rise in earth's temperature, commonly dubbed as global warming. Consequently, the coastal cities/ States face the threat of being submerged in the near future. One such city is Chennai, in the state of Tamil Nadu whose sea levels have been projected to rise to an extent of 1.03 meters by 2150 as per the 6<sup>th</sup> Assessment Report of Sea Level Projection prepared by the Intergovernmental Panel on Climate Change (hereinafter referred to as the IPCC). Given the alarming trend, the people in Chennai or any city for that matter facing an existential crisis have the tendency to relocate elsewhere, primarily due to environmental reasons. So, when they run to safeguard their lives there are multiple issues that needs to be addressed. However, this research paper will focus on one key factor, which is their identity or the issue as to how they will be recognized. Already there is

a framework surrounding the status of refugees, but the question remains as to accommodating the ‘climate-refugees’ under its umbrella. With this brief backdrop, the following work will analyze the possibility of widening the scope of refugees especially in the context of rising sea levels in the city of Chennai.

## II. IMPACT OF CLIMATE CHANGE ON SEA LEVELS

Climate change isn’t a myth, it is a reality. Like it or not, we need to accept this fact and rise up to the occasion, to do our part to mitigate the damage that has been already done to the detriment not only of the nature, but to the mankind *in toto*. The United Nations Framework Convention on Climate Change, 1992 (hereinafter referred to as the UNFCCC) has provided a comprehensive definition to the term ‘climate change’.<sup>1</sup> The three essential features of climate change as seen from the definition are attribution (to human activity), alteration (in the composition of global activity) which happen in addition (to natural climate variations seen over a period of time). In essence, climate change can happen naturally or through the intervention of man.

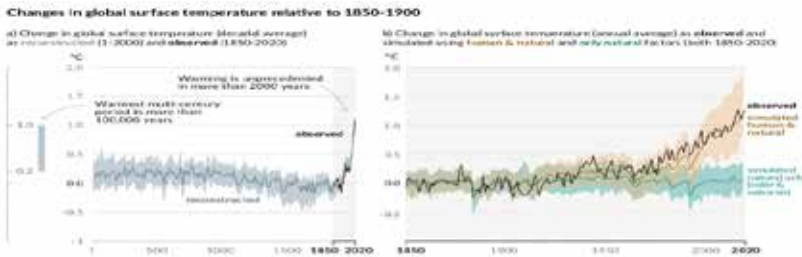


Figure 1: History of global temperature change<sup>2</sup>

In the context of rising sea levels which happens through the melting of the polar ice caps, glaciers especially in the Greenland, Arctic and the Antarctic region among others, unprecedented increase in the sea levels have been witnessed in the 20<sup>th</sup> Century alone.<sup>3</sup> As seen from the above-mentioned figure, the time period between 1850 to 2020 has been considered the warmest multi century period in which the temperature rose from 0. 2° C to 1.0° C. And even within that it is significant to note that the anthropocentric simulated

<sup>1</sup> UNFCCC Art. 1(2).

<sup>2</sup> Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, SPM 1, SPM 7, (2021) <[https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC\\_AR6\\_WGI\\_Full\\_Report.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf)>. (Accessed on 12 January 2022).

<sup>3</sup> CLIMATE.NASA.GOV, <<https://climate.nasa.gov/news/3012/nasa-led-study-reveals-the-causes-of-sea-level-rise-since-1900/>>. (Accessed on 26 January 2022).

temperature increase is higher than the natural simulations. Without any hesitation, we can hold that the man-made causes lead to global warming.

No wonder, it is the 20<sup>th</sup> Century that has forgot its mandate to protect and cherish the environment. Based on the satellite sea level observations, from 0 mm in January 5, 1993 the sea height variation has increased to a staggering 100.9mm on September, 2021!

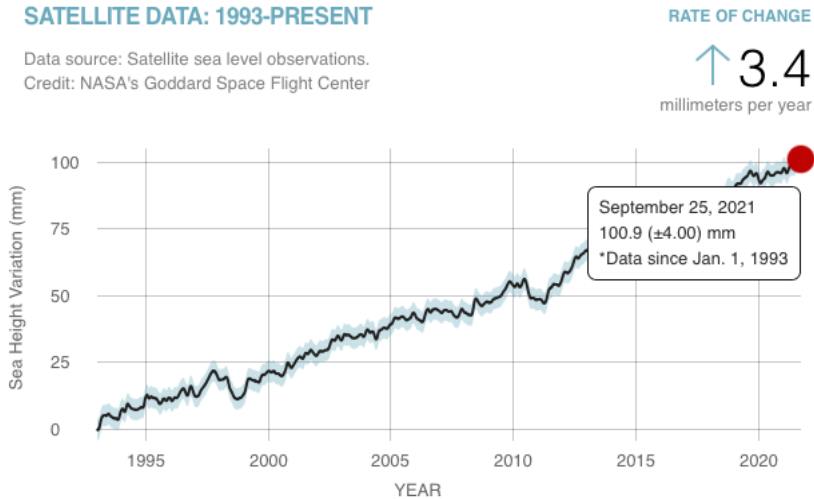


Figure 2: Satellite data on Sea Height Variation in millimeters (mm), NASA<sup>4</sup>

According to the facts as projected at the Ocean Conference of United Nations convened in New York between 5 to 9<sup>th</sup> June, 2017, nearly 10 % of the World's population i.e., more than 600 million people, have their being at the coastal regions which are less than 10 meters above the sea level.<sup>5</sup> And 40 % of the global population, which is approximately 2.4 Billion people survive within 100 kms from the coast.<sup>6</sup> This should tell us the gravity of the problem at hand. The Indonesian government on 18<sup>th</sup> January 2022 even passed a law to shift its capital from Jakarta to Nusantara situated in the East Kalimantan province.<sup>7</sup> The primary reason is due to fact that Jakarta has been slowly

<sup>4</sup> CLIMATE.NASA.GOV, <<https://climate.nasa.gov/vital-signs/sea-level/>>. (Accessed on 26 January 2022).

<sup>5</sup> UN.ORG, <<https://www.un.org/sustainabledevelopment/wp-content/uploads/2017/05/Ocean-fact-sheet-package.pdf>>. (Accessed on 26 January 2022).

<sup>6</sup> *Ibid.*

<sup>7</sup> AYMAN Falak Medina, Indonesia Passes Bill to Build New Capital City: Deadline 2024, ASEANBRIEFING.COM (January 5, 2022) <<https://www.aseanbriefing.com/news/indonesia-passes-bill-to-build-new-capital-city-deadline-2024/>> (Accessed on 26 January 2022).

sinking! As estimated, nearly 40 % of the city is below the sea level.<sup>8</sup> In its official statement made at the world leaders' summit, the Prime Minister of Tuvalu Kausea Natano explicitly communicated the following statement and I quote, *"I want to make it plainly clear that, even if all GHG emissions ceased tomorrow, Tuvalu, and other low-lying atoll nations, are sinking and our land is fast disappearing."*<sup>9</sup>

In Tamil, there is proverb that goes like this, literally meaning, *'one rice will be enough to check whether the whole pot of rice has boiled'*. The situation in Indonesia, Tuvalu are all the more sufficient for us to know the trajectory of the world *vis a vis* the rising sea levels. At this juncture, it is worth noting the United Nations General Assembly resolution (hereinafter referred to as the UNGA) 44/206 of 22<sup>nd</sup> December 1989 that recognized the ill effects of the rising sea levels on the low lying coastal areas, islands and coastal areas.<sup>10</sup> And also the UNGA resolution 73/265 included the topic 'sea level rise in relation to International Law' as a work for the International Law Commission (hereinafter referred to as the ILC) and the ILC in Chapter IX its 2021 report has addressed the said issue in depth also discussing the further course of action. It is also submitted that comments have been received in relation to 'sea level rise in relation to International Law' from Individual States, International Organizations like the UNFCCC, and the Pacific Islands Forum for the 73<sup>rd</sup> Session of ILC, 2022.<sup>11</sup> All of this clearly indicate the fact that the Nation States have considered and are considering the potential means through which the ill effects in relation to the rising sea levels can be reduced.

### III. REFUGEES VS CLIMATE REFUGEES

The challenge before the international community is very vast. As seen from the preceding paragraph, millions of people in the coastal States face a survival threat. Now if they move out or rather relocate from one location to the other, what will be their status? Before venturing any further, one should be mindful about the differences between the term migrant and the term refugees. Say for instance a person called X moves into a State called Y for better employment opportunities or for better livelihood he will be designated as a migrant. But in case of the term 'refugees' as per the definition<sup>12</sup> given in the Convention on the Status of Refugees, 1951 there are certain key essentials required to classify a person as a refugee and they are as follows,

<sup>8</sup> EARTH OBSERVATORY.NASA.GOV, <<https://earthobservatory.nasa.gov/images/148303/as-jakarta-grows-so-do-the-water-issues>> (last visited on 26 January 2022).

<sup>9</sup> UNFCCC.INT, <[https://unfccc.int/sites/default/files/resource/TUVALU\\_cop26cml16cma3\\_HLS\\_EN.pdf](https://unfccc.int/sites/default/files/resource/TUVALU_cop26cml16cma3_HLS_EN.pdf)>. (Accessed on 26 January 2022).

<sup>10</sup> UNFCCC preamble.

<sup>11</sup> LEGAL.UN.ORG, <[https://legal.un.org/ilc/guide/8\\_9.shtml#govcoms](https://legal.un.org/ilc/guide/8_9.shtml#govcoms)>. (Accessed on 26 January 2022).

<sup>12</sup> Convention on status of Refugees, Art. 1(2).

- i Well-founded fear of being persecuted
- ii Owing to fear is unable or unwilling to get the protection from the country of his nationality
- iii Owing to fear is unwilling to return to his country

On the plain reading of the stipulations as given in the provision, we can understand one repeated term ‘fear.’ Unlike migrants, refugees relocate owing to fear. Fear of what? Can be the next question. And that is the fear of being persecuted, “*owing to the reasons of race, religion, nationality, membership of a particular social group or political opinion.*”<sup>13</sup> These persecutions have made the persons home State as a predator that is no longer safe for his/ her survival. As clarified in the UNHCR handbook, the usage of the term ‘well-founded fear’ has within itself both the subjective element which is the fear of mind and the objective element which is the criterion of being well founded.<sup>14</sup> Once again, this subjective fear coupled with objectivity is restricted to the context of an exhaustive list of persecutions. By implication any other persecution/ difficulty is outside the scope of the provision and the refugee convention at large.

At this backdrop, the possibility of bringing in the people who flee their land due to environmental reasons and specially to escape from being submerged in the ocean, under the definition of refugees is indeed a complex question. Now if we revisit the definition, even in case of those whom who are designated as climate refugees there is without an iota of doubt, a well-founded fear. Going by the clarification as provided by the UNHCR handbook, yes, the term fear has within itself both the subjective and the objective element. How do we say this? The objectivity stems forth from adequate scientific data that has projected that the land mass is sure to shrink in the future.

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<sup>13</sup> *Ibid.*

<sup>14</sup> *Handbook on Procedures and Criteria for Determining Refugee Status and Guidelines on International Protection*, 13, 19, (2019) <<https://www.unhcr.org/publications/legal/5ddfcdc47/handbook-procedures-criteria-determining-refugee-status-under-1951-convention.html>>. (Accessed on 26 January 2022).

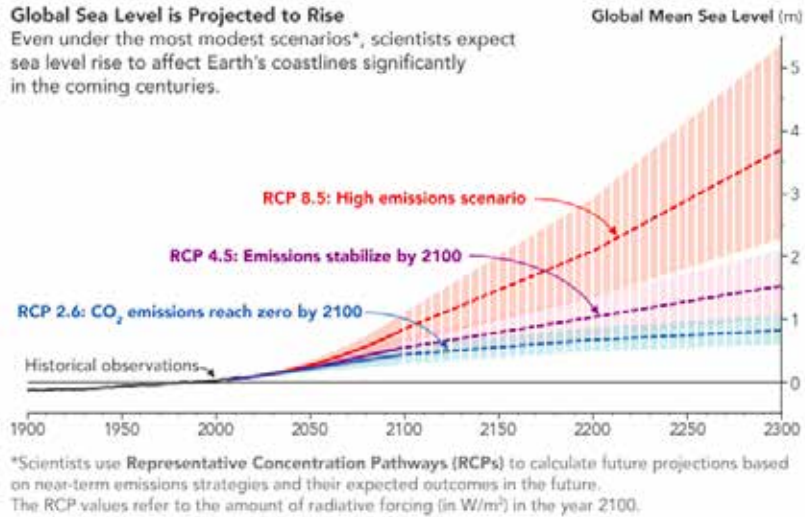


Figure 3: Anticipatory Future Sea Levels, NASA Earth Observatory<sup>15</sup>

This alarming statistic is a solid proof to the eventual takeover of the land mass by the prowling sea. The fear of rising sea levels isn't ill founded, rather well founded by objective fact! The definition of refugees also notes that the well-founded fear is actually due to persecution. That's where the problem lies, as there is no persecution from anyone for the climate refugees. To be honest with ourselves and going by the definition of climate change<sup>16</sup> and applying it specifically to the context of rising sea levels there are just two possibilities. On the one hand is the natural reasons and on the other is the man induced causes. As per the report of the IPCC, the compelling factor for the rise of Global Mean Sea Level (hereinafter referred to as the GMSL) are the anthropogenic factors.<sup>17</sup> The point is simply this, instead of calling the issue as a well-founded fear of persecution (as was the case for the refugees), it can be better called as a well-founded fear of facing the ramification for our own human actions. To be more precise, it is the well-founded fear of being submerged.

It would also be appropriate to cite the Stockholm Declaration which has forewarned the disaster that we are headed to. The paragraph three of the proclamation, especially the latter part reads like this, "*we see around us growing evidence of man-made harm in many regions of the earth: dangerous levels*

<sup>15</sup> EARTH OBSERVATORY.NASA.GOV, <<https://earthobservatory.nasa.gov/images/148494/anticipating-future-sea-levels>>. (Accessed on 26 January 2022).

<sup>16</sup> *Supra* note 1.

<sup>17</sup> IPCC.CH, <<https://www.ipcc.ch/srocc/chapter/chapter-4-sea-level-rise-and-implications-for-low-lying-islands-coasts-and-communities/>> (Accessed on 26 January 2022).

*of pollution in water, air, earth and living beings; major and undesirable disturbances to the ecological balance of the biosphere; destruction and depletion of irreplaceable resources; and gross deficiencies, harmful to the physical, mental and social health of man, in the man-made environment, particularly in the living and working environment.*"<sup>18</sup> The reason why this portion of the document is cited is to emphasize on the fact that the well-founded fear of being submerged is not something that cropped up all of a sudden, rather it was expected and anticipated.

Tracing back the definition of refugees, the fear also is that the country of his/ her nationality, instead of protecting has begun persecuting the people in question. But in the context of the designated the climate refugees even the issue of the role of the State doesn't have a bearing on the issue concerning the rise in sea level. Even the State needs protection as like the people who are in need of protection. Similarly, the question of unwillingness to return back also doesn't arise as the State might be non-existent! Refugee convention is specific as it talks of people moving from their State to a different State or the inter State movement. In case of climate refugees there are possibilities of them moving within the State to different elevated locations or the intra State movement.

Above all, the pertinent issue that also needs to be addressed is the fact that (going by the wordings of the definition of refugees) the refugees face a present threat. But in our context, the climate refugees not necessarily need to face a present danger, but it can also be a potential future danger. After all, rise in the sea levels happen slow and steadily.

So, there are indeed technical difficulties in applying the definition of refugees to that of the climate refugees. And it is indeed obvious that the document doesn't accommodate the climate refugees because, it was made with a different objective of safeguarding the refugees who sprouted post the World War II and specifically to cater to this need and to determine their legal status the convention came into picture.<sup>19</sup> Another reason can be the fact that these climatic consequences couldn't have been anticipated beforehand.

Nevertheless, the time has already been ripe to consider whether the present convention should be expanded to its capacity to include the climate refugees or should a separate convention be required to delve deeper into this burning problem. As far as the present position stands, the identity and *de jure* status of climate refugees and potential climate refugees is uncertain.

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<sup>19</sup> *Handbook on Procedures and Criteria for Determining Refugee Status and Guidelines on International Protection*, 13, 13, (2019) <<https://www.unhcr.org/publications/legal/5ddfcdc47/handbook-procedures-criteria-determining-refugee-status-under-1951-convention.html>>.



#### IV. STATUS OF CHENNAI CITY

The capital of the State of Tamil Nadu is Chennai, and by virtue of its importance as the seat of power and other allied specialties, it also remains as a populous city accommodating 26553 people per square kilometer according to the 2011 Census.<sup>20</sup> Another striking feature with regard to the Chennai is the fact that it is a coastal district. As a matter of fact, the State of Tamil Nadu has a coastal line running up to 1076 kms (which is 15 % of the total coastal length in India).<sup>21</sup>

S. NO	Coastal Districts	Length of the coast in (kms)
1	Chennai	19.0
2	Thiruvallur	27.9
3	Villupuram	40.7
4	Pudukottai	42.8
5	Thanjavur	45.1
6	Thiruvarur	47.2
7	Tirunelveli	48.9
8	Cuddalore	57.5
9	Kanyakumari	71.
10	Kanchipuram	87.2
11	Tuticorin	163.5
12	Nagapattinam	187.9
13	Ramanthapuram	236.8
	<b>Total</b>	<b>1076.0</b>

Source: ENVIS Centre: Tamil Nadu<sup>22</sup>

Based on the data, the district of Chennai contributes to 1.76 % of coastline in the State of Tamil Nadu. The 6<sup>th</sup> Assessment Report of Sea Level Projection prepared by the IPCC, has predicted the increase in sea level in Chennai from 0.04m in 2020 to an estimated rise to 1.03m in 2150. During the course of 130 years, the sea level is expected to rise to almost a meter. This frightening data also conveys that such a sharp rise is certainly going inundate several parts of the coastal city. As told by Dr. K. Palanivelu, the Director of the Centre for Climate Change and Adaptation Research (CCCAR), “*Even a half a millimetre*

<sup>20</sup> CENSUSINDIA.GOV.IN, <[https://censusindia.gov.in/2011census/dchb/DCHB\\_A/33/3302\\_PART\\_A\\_DCHB\\_CHENNAI.pdf](https://censusindia.gov.in/2011census/dchb/DCHB_A/33/3302_PART_A_DCHB_CHENNAI.pdf)>. (Accessed on 26 January 2022).

<sup>21</sup> TNENVIS.NIC.IN, <[http://tnenvis.nic.in/Database/TN-ENVIS\\_900.aspx](http://tnenvis.nic.in/Database/TN-ENVIS_900.aspx)>. (Accessed on 26 January 2022).

<sup>22</sup> *Ibid.*

*sea-level rise could inundate over 60,000 acres of land near the coast.*<sup>23</sup> If half a millimetre can sink 60,000 acres of land, how much more land will we be losing for a 1 meter or 1000-millimetre sea level rise! Yes, it is indeed a well-founded fear of going under the water. To reiterate, this fore coming disaster will not be immediate, but it is imminent and certain.

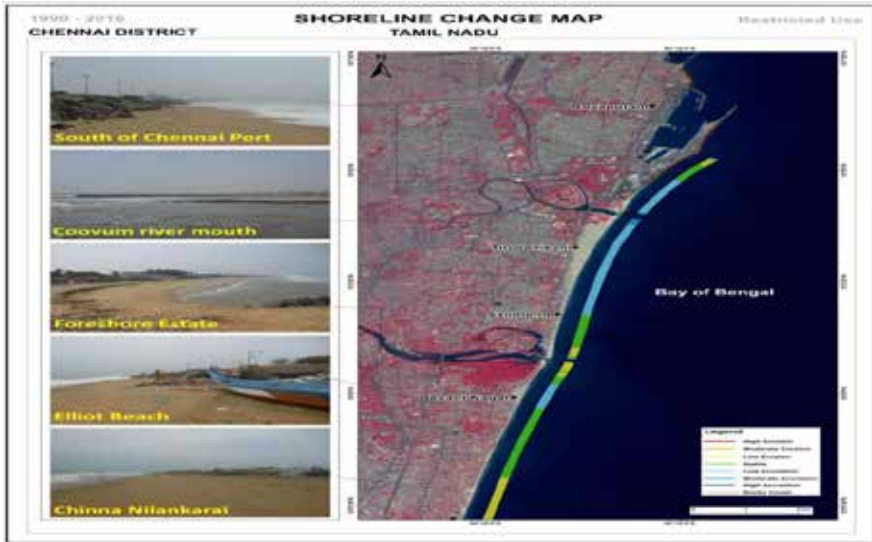


Figure 4: Shoreline change Map (1990 to 2016), Chennai District, National Centre for Coastal Research, Report, 2018<sup>24</sup>

One good thing concerning an issue like rise in sea levels is the fact that it doesn't come as a surprise. The long-term predictions provide us ample time to reflect and if possible, try to reduce the ill effects. That's precisely why the international environmental agreements repeatedly argue for ensuring a sustainable development which will not put our future in jeopardy. Violating them would be always for our own peril.

As far as the status of the people in Chennai is concerned, they certainly can be called as potential climate refugees who live in a constant fear that the land, they live in will not be there forever. Just because they do not fit in the orthodox definition of the term 'migrants' doesn't make their status any better. After all, it is the duty of the State to ensure a safe livelihood to its

<sup>23</sup> Vidya Venkat, "Adaptation is Crucial to Tackling Climate Change, Say Experts," The hindu. com (August 1, 2017, 00.48 IST) <<https://www.thehindu.com/news/cities/chennai/adaptation-is-crucial-to-tackling-climate-change-say-experts/article19398448.ece>> (last visited on 26 January 2022).

<sup>24</sup> NCCR.GOV.IN, <<https://www.nccr.gov.in/sites/default/files/schangenew.pdf>> (Accessed on 26 January 2022).

citizens and the fundamental right to life as enshrined under Part III of the Constitution of India should be safeguarded.<sup>25</sup>

## V. SUGGESTIONS

The Chennai district is soon headed for destruction by the water and the precious human lives are at stake. Having analyzed the definition of refugees as seen from the Refugee Convention, 1951 indicated the fact that there is no room for accommodating those refugees who flee their locations owing to environmental concerns, specifically the rise in sea levels. So, twisting the definition of refugees to accommodate climate refugees isn't going to be a solution. As the famed proverb goes, 'Prevention is better than cure' the time has now come to prevent global warming at the first place. Though we the humans have no control over the natural causes that result in climate change, certainly we do have enough say in the man-made interventions that have the potential to change the course of our earth once and for all. More often, the complacent attitude towards the environment, works for our detriment. It is certainly not the lack of adequate legal frameworks that has put us in such a situation. Actually, we have more than 1300 Multilateral Environmental Agreements (MEAs), over 2200 Bilateral Environmental Agreements (BEAs) and 250 other environmental agreements.<sup>26</sup> But the problem lies in implementing the treaty obligations in good faith.<sup>27</sup> In other words, it is the lack of commitment to fulfill the aspirations of the document that has rendered them with little or no effect. Specifically, commenting on the status of the (present and potential) climate refugees it is true that they are in unchartered territory. However, it does not mean that they have no regulation whatsoever to govern them. The term 'climate refugees' may be absent from the legal instruments, but the whole issue boils down to their safe survival and their basic right to life which touches the core of the Human Rights jurisprudence. So, instead of calling for more and more legal instruments and making the issue complex, the existing Human Rights framework will be more enough to cater to their intrinsic rights. The phrase 'Human Rights Jurisprudence' does not throw the entire responsibility on the international actors, rather, protecting the people within their own territorial borders is the bounden duty of the respective State. Joining hands, the national and the international stakeholders can work wonders to save the sinking world and also the sinking Chennai

## VI. CONCLUSION

We the humans are not exempt from the law of reaping and sowing. We cannot expect to reap barley when we sow wheat. Similarly, we cannot expect

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<sup>25</sup> Indian Const. Art. 21.

<sup>26</sup> IEA.UOREGON.EDU, <<https://iea.uoregon.edu/>> (Accessed on 26 January 2022).

<sup>27</sup> Vienna Convention on Law of Treaties, Art. 26.

a glorious nature, when we degrade it so badly. Consequences follow and there is no escape. Yet, all is not lost. The predictions especially for Chennai is almost 130 years ahead of us. Little changes in how we approach our environment can certainly postpone the upcoming disaster and save the millions who have their survival in coastal cities including Chennai. Tracing back our roots now is the day to be environment conscious. Development is important but if it happens at the cost of nature, we have reaped the harvest in tears. The warning cry has already sounded, and the time is now to react. Having more and more conferences, dialogues, negotiations, laws, regulations will serve no purpose unless and until it is put into action. If the existing legal documents, notably the human rights instruments are taken seriously, life at large will be valued. A person who has recognized the worth of his life will obviously be mindful about the life of others and shares the concern for his habitat. No more it is I, but it is they, them and we. Respect for the habitat means more of being environment conscious, than having a tunnel vision that fails to appreciate and take into consideration the biodiversity at large. These small initiatives that should start with an individual, can impact the world at large. Refugee or climate refugee or migrant or whomsoever it is, people will eventually join hands to safeguard one another. If the previous lessons that the nature has taught us are not taken seriously, we are not far from the day when the Government of Tamil Nadu might shift its sinking capital from Chennai to a different district just like Indonesia shifted its sinking capital from Jakarta. When nature takes the upper hand, the world will be beyond repair. And the choice is on us to decide.