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# The Development of Transboundary Air Pollution and the Impact on Environment

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## ABSTRACT

*International concerns over the degradation of environment has been less perceived. At the same time, it is important to note that air pollution is becoming a serious concern for the health and economy of many nations around the globe. With the objective to reduce air pollution various conferences were organized however, it was observed that different nation-states were indulged in the game of finger pointing. This act was ineffective for confrontation with transboundary air pollution and certainly highlighted the fact that problem of air pollution requires a high level of international cooperation and dialogues for the matter of fact that air knows no boundary. Air Pollution has become a global reason and significant contributor to childhood illness and death around the world. The article addresses the international developments in confronting the issue of transboundary air pollution. The Europe has emerged as a key leader for mitigating the transboundary air pollution to a great extent and the minor steps undertaken by Asia and North America are significant to combat the menace. Air pollution is a global as well as regional issue, and a trend towards international cooperation and employing scientific principles would aid to significantly reduce the pollution to a great level.*

## I. INTRODUCTION

*“Humankind has not woven the web of life. We are but one thread within it. Whatever we do to the web, we do to ourselves. All things are bound together. All things connect.”<sup>3</sup>*

Until the period of 1979 no treaty casts its primary consideration with limited exceptions to apply brakes on the rights of the state to permit atmospheric emissions that leads to environmental damages. However, preventive strategies are placed as a recourse in some treaties. Since 1979, innumerable treaties and international actions came into picture to address the protection of the atmosphere as many deleterious consequence flows if the atmosphere is not protected substantially. Even though there is no presence of a convention on the atmospheric air pollution regime unlike the United Nations Convention on Law of the

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<sup>3</sup> Henry A. Smith, *Early Reminiscences, Scraps from a Diary-Seattle Sunday Star*, October 29, 3 (1887).

Seas, there is adoption of various international instruments at both regional and local level covering a wide range of subject matter including: the pollution by Sulphur-di-oxide, nitrogen oxide, VOC, heavy metals, protecting the environment from further degradation and preventing the climate change. Transboundary pollution is characterized as a pollution which emanates from one country but it is able to cause desecration in another nation's environment through the channel of air or water particularly.

## II. THE CLASSIC CASE CONCERNING TRAIL SMELTER

The case involving the arbitral tribunal formulating an award in the famous *Trail Smelter* case is referred in order to understand the undeniable fact that the general principles of international law confer the duties on the state to avert the pollution which is mainly characterized to be a transboundary one.<sup>4</sup> The case marked its beginning from a dispute which arose as an end product of damage inflicted on the crops, pasture lands, trees situated in U.S. due to the liberation of Sulphur-di-oxide fumes released from a consolidated mining trail in British Columbia. After the concerning damages arising after January 1932 the commission has recommended the application of certain equipment to decrease further the amounts of Sulphur-di-oxide emissions. U.S communicated the fact that further damage has occurred was occurring in February 1933 and in April 1935. The two nations decided to present the said matter before the organ of arbitral tribunal.<sup>5</sup>

It marks a remarkable venture that enlists the case by virtue of taking into account the arbitral compromise which was formulated duly between the countries and subsequently, it points out a method for computation and measure of recoverable damages.

## III. NUCLEAR TESTING- A TEST FOR ATMOSPHERIC POLLUTION

UN General Assembly in the 1950s addressed the issue of atmospheric nuclear test as the foremost issue to be dealt with in the regime of environment protection. This has been consequently resulted in the adoption of the Nuclear Ban Treaty, 1963 which had an objective to ban the nuclear explosions.<sup>6</sup> Before the ICJ, Australia along with New Zealand commenced proceeding against France to stop these and other nuclear tests which were taking place in Pacific region. Australia looked to the ICJ to proclaim that it is inconsistent with the applicable rules of international law in carrying out further atmospheric nuclear weapon tests. Consequently, France was ordered not to carry out any further tests, Australia

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<sup>4</sup> Trail Smelter case, 3 RIAA 1907 (1941).

<sup>5</sup> Convention on the Complaints in the State of Washington for Discharge of Fumes from Consolidated Mining, British Columbia, the USA and the UK, 15 April 1935.

<sup>6</sup> Nuclear Test Ban Treaty, 10 October, 1963 MOSCOW, 480 UNTS 43 (1963).

claimed that the tests would be-

- (1) Violation of right of any country to be loosened from atmospheric nuclear tests;
- (2) Without the consent of the countries it would permit the deposit of radioactive outgrowth on airspace and land under its dominion;
- (3) An infringement of freedom of the High seas due to the intervention of ships.<sup>7</sup>

The claim put forth by New Zealand was divergent in nature: it in a way expostulated the fact that the nuclear test conducted by the French was framed keeping in mind the factor of violation of 'rights of all the members of International community' to be exempted from the nuclear tests conducted, which gave way to radioactive outgrowth and the right to be preserved from '*contamination of the terrestrial, maritime and aerial environment by the application of unjustified artificial radioactive*'.<sup>8</sup> Australia and New Zealand seek interim measure as a means of protection subsequently pursuing the government of France to avoid nuclear tests which was causing augmentation of artificial radioactive fallout on their respective dominions, however, the ICJ's judgment in the matter rested being unsettled.<sup>9</sup> France elected to be absent from the case. Subsequently, France did not take any action or step that further exasperated the persisting decision or cause prejudice to the rights of the parties.<sup>10</sup>

The merits of the case were not appreciated by the forum of ICJ. The ICJ subsequently after following the unilateral declaration of France in respect of carrying out the atmospheric nuclear test conducted the declared it inessential for the case to proceed, since the claims of the parties do not stand and therefore the ICJ was not called upon to render a decision on the same.

Despite the unsatisfactory of fate of both the cases, the question of existence of customary law in consonance with the transboundary or other air pollution sprouted from the Trail Smelter case and the nuclear test case.

#### **IV. THE SHARED ASPIRATIONS: UNCED AND WSSD**

The protection of atmosphere is a significant contemplation at both the levels of United Nations Conference on Environment and Development (UNCED) and World Summit on Sustainable Development (WSSD). Agenda 21 devoted, identifying four programme areas.

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<sup>7</sup> Australia v. France Nuclear Test case, ICJ Reports 99, 103 (1973).

<sup>8</sup> New Zealand v. France Nuclear Test case, ICJ Reports 135, 139 (1973).

<sup>9</sup> Nuclear Tests cases; 171 ICJ Reports 135 (1973).

<sup>10</sup> *Ibid.*

These relate to: triggering uncertainties (essentially concerned with improving understanding of the mechanisms in depth in a regional and local scale which impact and are in a way governed by the blanket of atmosphere surrounding the earth, enhancing co-operation internationally, ameliorating the social and economic repercussions of atmospheric changes and mitigation and response measures);<sup>11</sup> promoting the pattern of Sustainable Development; preventing the ozone layer depletion in the stratosphere;<sup>12</sup> and strengthening arrangements for encompassing restrictions on transboundary air pollution.<sup>13</sup>

Supporting the fact that for sustaining the principles of sustainable development lies at the core of solving problems of transboundary air pollution, depletion of ozone layer and climate change were the underpinning provisions for Agenda-21.

In comparison with Agenda 21, the WSSD Plan of Implementation provided far less concrete guidance on the future developmental phases of international regulation of atmospheric pollution. At the summit itself, much of the attention was focused on climate change and the need for states to ratify the Kyoto Protocol ‘in a timely manner’.

On other issues of atmospheric pollution, the Plan of Implementation called for reinforcing the intuitive magnitude of developing countries and economies in metamorphosis to monitor and decrease the impacts of transboundary air pollution; ensuring revitalization of fund maintained under the 1987 Montreal Protocol and supporting the compliance mechanism of protocol and addressing illegal traffic in the realm of ozone-depleting substances.

## V. URBAN AND TRANSBOUNDARY AIR POLLUTION

In the late nineteenth century the concerns over the development of Urban and Transboundary pollution began to emerge as the consequences of large-scale industrialisation and intensive development.<sup>14</sup> The *Trail Smelter case*, emerged as the paramount case for international dispute over transboundary air pollution and was notable for its reliance on scientific expertise to discern the links between gaseous emissions from the zinc smelter at Trail, and damage to crops, forests, soil and waterways across the border in Washington State. Science has been serving as a paramount consideration amongst the regulatory efforts addressed towards urban and transboundary air pollution in the light of the need to identify

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<sup>11</sup> Agenda 21, Rio Declaration, Conservation and Management of Resources for Development para. 9.7 (1992).

<sup>12</sup> Agenda 21, Rio Declaration, Conservation and Management of Resources for Development paras. 9.23, 9.24(a) (1992).

<sup>13</sup> Agenda 21, Rio Declaration, Conservation and Management of Resources for Development paras. 9.26, 9.27(e) and 9.28(a) (1992).

<sup>14</sup> J. Brunne'e, Acid Rain and Depletion of Ozone layer, INT LAW AND REGULATION 13 (1988); J. Carroll, Trans-boundary Air Quality Relations INT LAW REV. (1990); P. Mercure, T. Stephens, R. Baird and M. Simons, 'Ocean Acidification: A Litmus Test INT Law REV. 459 (2009).

the environmental and human health effects of emissions of particular gases.

Human-induced emissions of gases that are prevalent worldwide, in the combination of air pollutants in the urban area<sup>15</sup> such as depositions of compounds of oxides of sulphur, nitrogen oxide, carbon monoxide, ozone, and include organics in the state of trace, with specific trace metals and suspended particulates as well as taking into account the pollutants exited out of ships.<sup>16</sup>

### **UNECE CONVENTION ON LRTAP**

More particularly the 1979 United Nations Economic Commission to Europe (UNECE) Convention on Long-Range Transboundary Air Pollution<sup>17</sup> is meant to address the brewing concerns mainly of acid rain and air pollutants present in the atmospheric layer. This Convention is a paramount multilateral agreement on transboundary air pollution control. In spite of a constricted regional scope the treaty has managed to present before the international community a global model standardising the basis for subsequent treaties adopted to deal with climate change and ozone depletion, and has proved to be a paradigm to monitor the persisting problems of acid rain and transboundary air pollution for other regions. The 1979 LRTAP Convention was developed following the Stockholm Declaration, specifically Principle 21. The Convention proved to be the first of the treaties that recognized the adversities of air pollution over short as well as long terms.

## **VI. EUROPE: A MODEL FOR THE WORLD**

Towards achieving real gains of all the regions in the world, Europe has made the greatest achievements. In order to address the issues of transboundary air pollution EU has created an efficient framework from which the European community has been able to effectively regulate.<sup>18</sup> European successes point to the fact that pollution and particularly transboundary pollution can be curbed through an open international dialogue. The numerous quasi-governmental organisations like Council of Europe ('COE') was a manifestation of ethic of cooperation which made extensive advances in process action and framework reduction.<sup>19</sup> The progress made in the Gothenburg Protocol, ('CLRTAP') is stated to be the 'most

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<sup>15</sup> UNEP, Report on Environmental Data, 10, 12 and 37–40 (1971).

<sup>16</sup> *Ibid.*

<sup>17</sup> LRTAP, Geneva, 13 November 1979, in force 16 March 1983, 18 ILM 1442 (1979); www.unece.org/env/lrtap. 75 AMERICAN JOURNAL OF INTERNATIONAL LAW 975 (1981); C. I. Jackson, 'A Tenth Anniversary Review of the ECE Convention on Long-Range Transboundary Air Pollution', 2 INTERNATIONAL ENVIRONMENTAL AFFAIRS 217 (1990); A. Fraenkel, 'The Convention on Long-Range Transboundary Air Pollution: Meeting the Challenge of International Co-operation', 30(2) HARV. INT. LAW JOUR. 447 (1989).

<sup>18</sup> Y. Fumihoko, *Moving towards a Regional Approach: Governance in Asia for Transboundary Pollution*, 29 JAPAN ECHO 30 (2002).

<sup>19</sup> J. Wettestad, *Detoxifying Air: Europe fights Transboundary air Pollution*, 32 ENVTL, 2002.

sophisticated environmental agreement ever negotiated.<sup>20</sup> There was a substantial reduction in the emissions of Nitric fumes, Volatile Organic Compounds and these commitments are imperative not because of extensive variations in figure but to achieve such enormous reductions is an expensive tasks for the countries.

Today, the South Asian Continent is looked as a major to be recipient of this model of transboundary pollution control. An example can be derived from the Indian sub-continent where severe outdoor air pollution of India and Pakistan has become a transboundary environmental and public health hazard.<sup>21</sup> An air pollution source analysis attributes 1.1 million deaths as of 2015 in India to the particulate matter air pollution.<sup>22</sup> 75% of this source of pollution is the rural background and further 5.5% of contribution is made by the open burning of agricultural residues, north-western region of the sub-continent, to the most part.<sup>23</sup> There are allegations from both the sides of how the quality of air is being deteriorated by the crop burning activities in the Punjab region of both the nations.<sup>24</sup> In the absence of specific international agreement between the two nations the redressal has become a difficulty. At the conjecture of this failed international state are the citizens of the two countries suffering from respiratory ailments. It is high time that India and Pakistan pen down a treaty based on the model of U.S. – Canada Air Quality Agreement, and aid in the institutionalization a more specific order for the South- Asian continent like in terms of the European model other than the Agreement on Trans-boundary Haze Pollution, 2000.

## VII. AIRCRAFT EMISSIONS: ICAO CONVENTION

To the global atmospheric problems, aircraft emissions act as a major player of contributor including climate change.<sup>25</sup> A council was thus, set in the very same year and adopted the Standards followed by proposals to strengthen the standardised set and advocated practices in order to attain ‘*supreme compatibility among the secured and well organized evolution of civil aviation along with the calibre of human environment*’.<sup>26</sup>

### CONVENTION AND ITS ACHIEVEMENT

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<sup>20</sup> *Ibid.*

<sup>21</sup> World Health Organization, *Ambient Air Pollution Database*, April 2018.

<sup>22</sup> Indian Council of Medical Research, Public Health Foundation of India, and Institute for Health Metrics and Evaluation, *India: Health of the Nation's States —The India State-level Disease Burden Initiative*. New Delhi: ICMR, PHFI, and IHME (2017).

<sup>23</sup> Indian Institute of Technology, Bombay, Health Effects Institute, and Institute for Health Metrics and Evaluation, *Air Pollution from many sources creates significant health burden in India: continued aggressive policy action could reduce health impact significantly* (2018).

<sup>24</sup> Michelle E. Miro, et al., *Transboundary Environmental Stressors on India-Pakistan Relations: An Analysis of shared Air and Water Resources*, 2019 RAND Corporation.

<sup>25</sup> IPCC, *Climate Change 2007 Assessment Report – Adaptation, Vulnerability and Impacts* (2007).

<sup>26</sup> ICAO Assembly Res. A18-11, para. 2.

The causes of “acid rain” was examined by the Scientists as early as in the 1960s and hence they came up with the resultant effect that was serving as cause of forest destruction, reduction in the number of fishes in lakes and eventually has brought whole ecosystems at menace in the Northern Hemisphere. Air pollutants were identified to be the real cause that have tendency to travel thousands of kilometers emitting in its way. The Convention considerably has accorded the expansion in the realm of environmental law internationally and has designated an essential framework to control and reduce damaging factors dissipated by the transboundary air pollution. It has proved to be a prominent example of what can be achieved through intergovernmental cooperation.

Through this it has been observed specifically that the sulphur emissions decline has led to healthier forest soils. Furthermore, in larger parts of Europe the fall in emissions has to a considerable level reduced the deposit of acidifying compounds to a level below critical load.

There has been reduction in nitrogen emissions. However, it is less reduction as compared to sulphur emissions and therefore, nitrogen compounds still serve to be a problem for acidifying forest soils.

The understanding of the underpinning of scientific values is the reason behind the achievements of Convention in air pollution which was demonstrated by the expansion of a customary scientific knowledge base comprising of a scientific framework targeted towards jointly monitoring and modelling programmes, containing a substantial web of scientists from wide range of disciplines. Moreover, the Convention has established a bridge for researchers, scientists and policymakers to interchange the information leading to *avant-garde* approaches and developing a process of inherent mutual trust and learning.

## VIII. CONCLUSION

Air cannot be restricted to a physical boundary and thus, air pollutants have a cross boundary effect. This is the reason that it has become a global problem and has required international coordination on such policy.

The point which needs imminent consideration is the fact that the ratification and subsequently enactment of the Convention and its protocol has a great potential to decrease the deleterious effects on the human health and the consequences of environmental disturbances which is more efficient in costs than with unilateral action. It also eloquently dispels the prospects of monetary benefits as harmonised legislation and the pre-emptory rules across borders will intercept a stable playing barn levelled between the countries with an object to avoid the parties to compete against each other at the cost of putting health and environmental elements at a greater risk.

States must also be well equipped with administrative and financial capabilities so as to comply with the regimes as set forward. The Convention's substratum of creating sound and technical institutions and its collaboration with the field of science has however provided us with a model for subsequent international treaties to dissipate their respective obligations. The LRTAP Convention in the near future will definitely resolve the potential risks of transboundary air pollution structuring its dome on the cavity of science and intergovernmental cooperation.

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