

IMPLEMENTATION OF MONTREAL PROTOCOL IN INDIA

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I. INTRODUCTION

The process of destruction of environment started when man started unveiling measures for his comfort by inventing machines for industrialization, which he thought would help him to live easier in the environment but it had the opposite effect. Mankind has a direct link with the biosphere, which forms a shell around the earth's surface. But the industrialization to build a comfortable future has led to the destruction of the biosphere and posed problems to all life on the earth. Increasing industrialization has fractured man's links with the biosphere, where if immediate operations are not performed and immediate brakes are not applied, the threat to all living beings may become a recent phenomenon.

Understanding of any environmental problem with respect to its causes and remedies involves scientific and technical knowledge. The biosphere which is a triple layered sphere comprises of the atmosphere (air), hydrosphere (water) and the lithosphere (rock and soil) having remarkable unique features which allows the earth to be a habitable place for humans, animals, microbes and plants as we know them. The atmosphere which is a slice of the biosphere is a mixture of gases which surrounds the planet like a shell and extends upto a few hundreds kilometers above the earth's surface. Earth's atmosphere is again triple layered comprising of three zones, namely, stratosphere, troposphere and ionosphere. The concerned layer known as the stratosphere extends from 15 to 50 kms above the earth's surface. In this layer a slightly pungent smelling, light bluish gas exists which comprises of the ozone molecules. This layer is called by the scientists as the ozone layer. Life on the earth is impossible without the presence of oxygen which forms the blanket on the earth's surface. The manifestation of oxygen in the atmosphere is mainly found in three forms, oxygen atom (O_2), oxygen molecule (O_3) and the ozone molecule (O_3). The ozone layer is thus a term used to describe the existence of ozone molecules in the stratosphere with maximum concentration between 10 to 50 kms above the ground level.

The eminent feature of ozone which makes life possible on the earth is its invisible filtering action which helps protect all life forms from the incoming sun's UV-B (ultraviolet) radiation from reaching the earth's surface, as it absorbs these rays and only allows the useful element of the rays to reach the earth. Without the protective shield of the ozone layer, life on the earth would not have evolved the way it has now.

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II. HOW OZONE DEPLETION OCCURS?

Ozone gets depleted when the natural balance between production and destruction of stratospheric ozone is tipped in favour of destruction. The man-made compounds called CFCs¹ are primarily responsible for this phenomena. The chemical composition of CFC molecule involves one carbon atom, one fluorine atom and three chlorine atoms. When the ultraviolet radiation from the sun strikes a CFC molecule, it causes one of the chlorine atom to break away.² This chlorine atom collides with the ozone molecules and steals an oxygen atom to form chlorine monoxide (CLO) leaving a molecule of two oxygen atoms (O_2). When a free atom of oxygen collides with the chlorine monoxide, the two oxygen atoms form a molecule of oxygen (O_2).³ The chlorine atom is released from chlorine monoxide leaving oxygen (O_2) and setting the chlorine atom free to destroy more ozone.⁴

A. The Threat – Its Beginning

Industrialization marked the beginning of depreciation of environment but it was thought of as the healthy living conditions of all life on the earth. It was referred to as progress but proved to be the opposite side of the same coin. There was production and release of chemicals into the atmosphere which started the phase of air getting polluted. The beginning was made with only carbon dioxide (CO_2) accompanied by small quantities of sulphurdioxide and nitrogen oxides. Then in 1930's, a group of chemicals which were thought of as miracles were discovered. They were known as the chlorofluorocarbons (CFCs) and were originally known by the name of "FREON GASES". Along with these, other chemicals discovered with the passage of time were carbon tetrachloride and methyl chloroform which were used as solvents. The gases had useful properties as refrigerants, foam blowing agents, aerosols etc. The use of bromofluorocarbons (halons) was found effective in fire extinguishers. Another use of methyl bromide came to be used as a fumigant in industrial use. These were inert, non-toxic and cheap chemicals and were used extensively.

B. The Dawning of the Discovery

The question of depletion of ozone was first focused in the United Nations Environment Conference at Stockholm in 1972 but the causes of ozone depletion were not known at that time. Several scientists along with many magnimous institutions had studied about the atmospheric chemistry but they

¹ Commonly called chlorofluorocarbons.

² $CFCL_3 + UV-B = CFCL_2 + CL$.

³ $CL + O_3 = CLO + O_2$.

⁴ $CLO = CL + O$ (Leaving chlorine atom to destroy more ozone).

could not come to any profound conclusions as to how the ozone was being depleted. It was in 1974, that two scientists Mario Molina and F. Sherwood Rowland inspired by the findings of James. E. Lovelock⁵ pursued his work and gave the alarming statements to the world that the ozone was being depleted because of man-made chemical compounds called CFCs and also explained the catalytic effect of chlorine released due to them.⁶ These suggested that once released into the environment, CFCs had lifetime of between 40 to 150 years and had obvious sinks other than photo dissociation in the stratosphere. Photo dissociation would produce chlorine atoms, which would then catalytically destroy ozone. Molina and Rowland concluded that the stratosphere had only a finite capacity to absorb chlorine atoms and even if CFCs production were reduced, a lengthy amount of time “of the order of calculated atmospheric life times would be required for natural moderation. Rowland and Molina’s work suggested that fluorocarbons were indeed an ominous threat to the environment because they were a significant source of stratospheric chlorine and had already been released in sufficient quantities to begin ozone depletion.

Natural variations in ozone do occur, but recent levels of ozone loss over the poles and lower latitudes cannot be explained by natural variability alone. As the dangers of depletion were realized, the first action was initiated in 1997 when a meeting of 32 countries in Washington. D.C. held, with the UNEP as the co-ordinator. Experts began their investigations and simultaneously experiments were conducted to check the authenticity as well as the causes behind it.

In 1985, Vienna Convention to prevent depletion of ozone layer was adopted. The Convention paved the way and for the adoption of 1987 Montreal Protocol on Substances that Deplete the Ozone Layer under which a subsequent and gradual phase out of CFCs, carbon substances, nitrogen substances, chlorine, bromine and hydrogen substances was agreed.⁷

The long term reliance of industries on these substances resulted in global atmospheric crises that could not be ignored. During that time, both the developed and developing countries were very skeptical of phasing out as they all were regular consumers of these chemicals. Besides, the developing countries thought that it was a ploy by the developed countries to withhold their progress. The other problem, which came up, was that the measures taken up by the Protocol were inadequate without the joint international action. Nevertheless, the Protocol identified the main ozone depleting substances and set specific limits on their production levels in the future. Besides, the developing countries had another special situation of substituting not only the

⁵ A British Scientist who was studying atmospheric chemistry.

⁶ Michael. E. Kowalok gave a brief synopsis of important events leading to the understanding of atmospheric ozone in his paper “Common Threads: Research lessons from acid rain, ozone depletion and Global Warming”, 1993.

⁷ List was very small as most of the ODS substances were not known at the time.

chemicals but also the technologies without having any financial assistance to change the same.

It was now, the phase of the beginning of all controversies when the Protocol was adopted. Unfortunately the scientific theories are uncertain and differ widely in coming to grips in the environmental problems. Uncertainty, resulting from inadequate data, ignorance and indeterminacy are an inherent part of science.⁸ However, agencies and courts must make choices based on existing scientific knowledge. In addition, agency decision making evidence is generally presented in a scientific form and cannot easily be tested and therefore inadequacies in the record due to uncertainty and insufficient knowledge may not be properly considered.⁹

The World Charter for Nature proclaims that activities which are likely to cause irreversible damage to the nature shall be avoided.¹⁰ The Charter also comes to grips with the problem of global environmental change by imposing a requirement on States and ultimately their nationals that activities which are likely to pose significant risks to nature shall be preceded by an exhaustive examination.¹¹ In case where the potential adverse effects of the activities are not fully understood, the activities shall not proceed.¹² In case the activities that may disturb the nature are to be undertaken, such activities shall be planned and carried out so as to minimize potential adverse effects.¹³

The World Charter is not binding treaty. However, it exerts considerable moral force on accepting States and Member States of the United Nations. Despite the fact that the Charter is not a binding treaty, a large majority of the Member States of the United Nations have supported the Charter. The Charter imposes "soft law" obligations on the States which means that the principles set forth in the present Charter shall be reflected in the law and the practice of each State as well as at the international level.¹⁴ Environmental measures must anticipate, prevent and attack the causes of environmental degradation. Where there are threats of serious or irreversible environmental damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The implication of this duty is that the developers must assume from the fact of development activity that harm to environment may occur and that they should take necessary action to prevent

⁸ Brian Wynne, "Uncertainty and Environmental Learning", 2 *Global Environmental Change* 111 (1992).

⁹ Chairman Barto, 22 *Harvard Environmental Law Review* 502 (1998).

¹⁰ World Charter for Nature, 1982, article 11(a).

¹¹ *Id.*, article 11(a).

¹² *Id.*, article 11(b).

¹³ *Id.*, article 11(c).

¹⁴ *Id.*, articles 14 to 24.

that harm. This principle is known as 'precautionary principle' and is recognized in major international documents.

III. PROVISIONS OF THE MONTREAL PROTOCOL

The global environment is a common concern of humanity.¹⁵ This principle read with the principle of right to development which provides that the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations¹⁶ initiated the formulation of the provisions of the Montreal Protocol.

A. Calculation of Control Measures

Under Montreal Protocol the task of estimating the control measures was called upon by first calculating the production level by:

- (i) multiplying its annual production of each controlled substance by the ozone depleting potential specified in respect of it in Annexes A,B,C or E;
- (ii) adding together for each group the resulting figures.

Thereafter, the imports and exports are calculated in accordance with the production of the country. The estimation of production is carried out by adding together the calculated levels of production and imports by subtracting its calculating level of exports as mentioned above. Also any export of controlled substance to non-parties shall not be subtracted in calculating the consumption level of the exporting party.¹⁷

B. Control of Trade with Non-Parties

Article 4 provides:

- (a) Every party to the Montreal Protocol shall ban the import and export of controlled substances to non-party to the Protocol.
- (b) The Parties following the procedures contained in Article 10 elaborate a list of products containing controlled substances in Annexes A,B, Group II of C. Parties not objecting to these Annexes in accordance with these procedures shall ban within one year of the Annexes being effective, the import of these products from any state not party to the Protocol.
- (c) The Parties shall determine the feasibility of banning or restricting from States not party to this Protocol, the import of the

¹⁵ ICUN Declaration, Principle 13.

¹⁶ Rio Declaration, Principle 3.

¹⁷ Montreal Protocol.

products produced with, but not containing controlled substances in Annexes A, B, and Group II of C. If feasible, the Parties following the procedures in Article 10 of the Convention elaborate in an Annex a list of such products. Parties that have not objected to the Annexes in accordance with those procedures shall ban, within one year of the Annex becoming effective, the import of those products from any State not party to this Protocol.

(d) Every Party shall discourage the export to any State not Party to this Protocol of technology for producing and utilizing controlled substances in Annexes A, B, E and Group II of C.

(e) Refraining from providing new subsidies, aid, credits, guarantees or insurance programmes for export to State not Party to this Protocol of products equipment, plants or technology that would facilitate the production of controlled substances as mentioned above.

(f) Under the Protocol, if a Party with respect to even one substance has agreed not to be bound by controlled measures shall be deemed not a Party to the Protocol.

C. Control of Trade with Parties

If a Party is unable to cease production of a controlled substance, other than agreed by Parties to be essential, for domestic consumption after the phase out date applicable to the controlled substance, it shall ban the export of used recycled and reclaimed quantities of that substance other than for the purpose of destruction.

D. Licensing – (A Control Measure)

As a means to gain control over the uses of controlled substance, it was laid down as imperative for every Party to establish and implement a system for licensing the import and export of new, used, recycled and reclaimed controlled substances in Annexes, B,C and E.

After circulating this system as a law into their economies, each Party shall report to the Secretariat on the establishment and reporting of the system which in its part as the invigilator of these systems, the Secretariat shall periodically prepare and circulate to all Parties a list of all Parties which have reported on their licensing system.

The Secretariat shall then forward the information to the Implementation Committee for consideration and appropriate recommendation to the Parties.

E. Developing Countries (Article 5 Countries)

The developing countries being a certain steps behind the developed countries are in a State of transit where they are using certain substances but a little lesser than those of the developed countries. A few provisions are made essential for developing countries.

(1) The developing countries have been give certain grace periods and a little delay for phasing out the use of these controlled substances and it has been further said that all adjustments and amendments shall apply to them as well after the Second Meeting of the Parties in London in 1990.

(2) The Article 5 Countries shall not exceed the level of consumption beyond that of the annual calculated level of controlled substances of certain kilograms per capita in accordance with the Annexes.

(3) When implementing the control measures set out in Article 2A to 2E, any Article 5 Country shall be entitled to use either the average of its annual calculated level of consumption or production or a set amount of calculated level of consumption of products of certain kilograms per capita (in accordance with Annexes A and B or A, by Year 1995-97 or B, by Year 1998-2000) whichever is lower, as the basis for determining its compliance with the control measures relating to consumption or production as the case may be.

(4) If an Article 5 Country is either unable to obtain an adequate supply of controlled substances or unable to effectively implement, provisions of the financial Mechanism,¹⁸ it shall notify the Secretariat who in turn shall transmit a copy of such notification to the Parties which shall consider the matter in the next meeting and decide upon appropriate action.

(5) A meeting of the Parties shall review before 1995 the effective implementation of the financial co-operation and transfer of technology to them and adopt such revisions as may be deemed necessary.

F. Assessment and Review of Control Measures

Beginning from 1990, and every four years thereafter, the Parties shall assess the control measures provided for in Article 2 and Articles 2 A to 2 H on the basis of available scientific, environmental, technical and economic information which in one year's time before assessment shall through a panel

¹⁸ *Id.*, article 10.

of experts qualified in their fields be reported through the Secretariat to the Parties.

G. Reporting of Data

Each Party shall provide to the Secretariat, the statistical data on its production, imports and exports of each of controlled substances in all Annexes and where possible estimates of such data where actual data are not available and for the calculation of production it shall take into account the amounts used in various fields as well as amounts destroyed by different technologies.

H. Non-Compliance

The Parties at their first meeting shall consider and approve procedures and institutional mechanisms for determining non-compliance with the provisions of the Protocol and for treatment of Parties found to be non-compliant.

I. Research, Development, Public Awareness and Exchange of Information

The Parties shall co-operate consistent with their national laws, regulations and practices and taking into account in particular the needs of developing countries in promoting directly or through competent international bodies, research, development and exchange of information on technologies for reducing emissions, possible alternatives and costs and benefits of relevant control strategies as well as bring public awareness and every two years submit a summary of action to the Secretariat.

J. Financial Mechanism

The Parties have established a mechanism for providing financial and technical co-operation for assisting Article 5 countries to meet all agreed incremental costs of such Parties to enable their compliance with the control measures of the Protocol.

(i) Multilateral Fund

This mechanism has established Multilateral Fund which shall finance all operations regarding the ODS phase out. The incremental costs include cost of transfer of technology, and purchase of capital equipment. It is financed by contributions from Parties who are not Article 5 Countries in convertible currency on the basis of United Nations scale of assessments and operational costs for switching over to non-ODS technologies enabling the developing countries to phase out controlled substances. This also means a multilateral,

regional and bilateral co-operation. The Fund's allocation was \$240 million for 1991-93, \$455 million for 1994-96, and \$465 million for 1996-99. The replenishment for the three-year period of 2000-2 was fixed at 440 million by the Parties at their Beijing meeting in December 1999. This includes \$ 150 million for China and \$82 million for India to close down their production facilities for CFCs. The Multilateral Fund has thus far disbursed over a billion dollars for capacity building and projects to phase out CFCs.

(ii) Executive Committee

Under the Multilateral Fund, the Parties shall establish an Executive Committee to develop and monitor the implementation of specific operational policies, guidelines and administrative arrangements including disbursement of resources. The Parties shall:

- (a) decide the program budget for each fiscal period;
- (b) decide percentage of contributions of individual Parties;
- (c) decide disbursement of resources with the concurrence of the beneficiary Party; and
- (d) take decisions by consensus and if no consensus is reached then by a two third majority vote of the Parties present and voting, representing the majority.

The Executive Committee in discharging its responsibilities is helped by

- the World Bank
- the United Nations Environment Programme,
- the United Nations Development Programme, and
- the United Nations Industrial Development Programme.

K. Meetings of the Parties

The Parties shall hold meetings at regular intervals and extraordinary meetings may be held at such times as is deemed necessary on the written request of any party. The Parties in their first meeting established various panels and mechanisms as well as rules of procedure and financial rules for the working of the matter of the Protocol.

In these meetings, the Parties shall preview the implementation of the Protocol, adjust and amend the Protocol according to the new situations and consider the future course of action. Any specialized or international agencies not Party to the Protocol may be represented at meetings of the Parties as observers.¹⁹

¹⁹ In accordance with rules of procedure of the Protocol.

L. Secretariat

Under the Protocol, a Secretariat is established for the proper functioning of its objectives as it arranges the meetings of the Parties, provides and passes out information or any other data either asked for a necessary information of all the Parties. It also performs all other functions necessary for the achievements of the purposes of the Protocol as may be assigned to it by the Parties.

IV. THE CHEMICALS AND THEIR PHASE OUT SCHEDULES

The various chemicals that have been identified and brought into the fold by the Panels assessing and identifying them are:

- Halo-carbons, notably chlorofluorocarbons (CFCs) and Halons. CFC-11 remains in the atmosphere for 50 years, CFC-12 for 102 years, and CFC-115 for 1700. Halon-1301 is used primarily in fire extinguishers and has an atmospheric lifetime of 65 years;
 - Carbon tetrachloride is used as a solvent and takes 42 years to break down in the atmosphere;
 - Methyl chloroform (1,1,1-trichloroethane) is also used as a solvent and takes 54 years to break down;
 - Hydrobromofluorocarbons (HBFCs) are not widely used, but they have been included under the Protocol to prevent any new uses;
 - Hydro chlorofluorocarbons (HCFCs) were developed as the first major replacement for CFCs. While much less destructive than CFCs, HCFCs also contribute to ozone depletion. They have an atmospheric lifetime of 1.4 to 19.5 years;
 - Methyl bromide (CH₃Br) is used as a fumigant for high-value crops, pest control, and quarantine treatment of agricultural commodities awaiting export. Total world annual consumption is about 70,000 tonnes, most of it in the industrialized countries. It takes 0.7 years to break down;
 - Bromochloromethane (BCM), a new ozone-depleting substance that some companies sought to into the market in 1998, has been targeted by including in the 1999 amendment for immediate phase-out, to prevent its use;
 - The Parties are considering measures to prevent the marketing of new ozone-depleting substances not so far covered by the Protocol.
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A. Phase out Schedule for Developed Countries

The phase out schedule for developed countries is as follows:

- phase out CFCs, carbon tetrachloride, methyl chloroform, and HBFCs by 1996;
- phase out CFCs, carbon tetrachloride, methyl chloroform, and HBFCs by 1996;
- reduce methyl bromide by 25% by 1999, 50% by 2001, 70% by 2003 and phase out by 2005;
- reduce HCFCs by 35% by 2004, 65% by 2010, 90% by 2015, and 99.50% by 2020. 0.5% is permitted for maintenance purposes only until 2030; and
- phase out HBFCs by 1996 and BCM immediately.

B. Grace Period for Developing Countries

Developing countries have a grace period before they start their phase-out schedules. This reflects the recognition that developed countries are responsible for the bulk of total emissions into the atmosphere and that they have more financial and technological resources for adopting replacements. The developing country schedules are as follows:

- phase out HBFCs by 1996 and BCM immediately;
- freeze CFCs, halons and carbon tetrachloride at average 1995-97 levels by 1 July 1999, reduce by 50% by 2005, 85% by 2007, and phase out completely by 2010;
- freeze methyl chloroform by 2003 at average 1998-2000 levels, reduce by 30% by 2005, 70% by 2010, and phase out by 2015;
- freeze methyl bromide by 2002 at average 1995-98 levels, reduce by 20% by 2005, and phase out by 2015; and
- freeze HCFCs by 2016 at 2015 levels and phase out by 2040.²⁰

The phase-out schedules cover both the production and the consumption of the target substances. However, even after phase out both developed and developing countries are permitted to produce limited quantities in order to meet the essential uses for which no alternatives have yet been identified, e.g., the use of CFCs in metered dose inhalers for asthma. Production is defined as total production minus amounts destroyed or used as chemical feedstock. Consumption is defined as production plus imports minus exports. Trade in recycled and used chemicals is not included in the calculation of consumption in order to encourage recovery, reclamation and recycling.

²⁰ May 1999, Press Backgrounder.

Scientists predict that ozone will reach its worst point during the next few years and then gradually decline until the ozone layer returns to normal around 2050, assuming that the Montreal Protocol is fully implemented. The ozone layer is currently in its most vulnerable state. Despite declining CFC emissions, stratospheric concentrations are still increasing (although they are declining in the lower atmosphere) because long-lived CFCs emitted in earlier years continue to rise to the stratosphere. The success of ozone protection has been possible because science and industry have been able to develop and commercialize alternatives to ozone-depleting chemicals. HFCs have a high global warming potential and have been included in the basket of greenhouse gases controlled by the Kyoto Protocol of the Convention on Climate Change. Consumers are recycling existing halons to gain time for developing substitutes for fire fighting. Countries are recovering and recycling CFCs from obsolete equipment and using it for maintenance of existing equipment. Industrialized countries are concentrating their phase-out efforts on HCFCs and methyl bromide. They are trying to ensure that HCFCs are used only as direct replacements where other more environmentally suitable alternatives are not available.

V. THE DRAWBACKS

The Protocol has been hailed as an extraordinary success so far, but there is no room for complacency because:

- Ratification is incomplete.
- Some countries with economies in transition (CEITs) are having difficulty complying with the Montreal Protocol.
- Illegal trade has increased.
- Although all new CFCs are now banned in industrialized countries, millions of CFC-dependent refrigerators, automobile air conditioners, and other equipment are still in service. Alternatives are available to service this equipment, but they can be more expensive. Recycled CFCs may be used to maintain existing equipment, but it is difficult to distinguish between new and recycled CFCs. In addition, while most consumption is forbidden, industrialized countries still produce some CFCs in order to meet their own essential uses and to supply developing countries, as permitted by the Protocol.
- The potential for methyl bromide to be adopted in more applications and by more countries is worrying. However, since many countries have not yet ratified the 1992. Copenhagen amendment which introduced controls on methyl bromide, there is a risk that consumption could spread to more countries and to more uses than at present.
- Atmospheric concentrations of halons continue to increase even though production ended in 1994. This is because halons in

existing fire-fighting equipment get emitted whenever there is a fire. This is a concern because the bromine contained in halons is 50 times more efficient than the chlorine in CFCs in depleting ozone.

- Meeting the phase-out schedules by the developing countries.
- With the arrival of the freeze on CFC production and consumption for the Article 5 Parties, the grace period granted to them by the Montreal Protocol has now ended. The Article 5 Parties have entered the “compliance” period in which they will have to achieve specific reductions in the national production and consumption of CFCs.
- A large number of used CFC-based refrigerators are being exported to developing countries by countries that have phased out CFCs. These sales could make the future CFC phase out by developing countries more difficult by stimulating a large demand for CFCs to maintain this equipment.
- CFCs are being replaced by HFCs, which have a large global warming potential. The Kyoto Protocol on Climate Change has included HFCs in the basket of six gases whose emissions are to be reduced by the industrialized countries.

VI. LESSONS TO BE LEARNT FROM THE MONTREAL PROTOCOL

The Montreal Protocol offers many lessons that could be applied to solve other global environmental issues. Firstly, adhere to the “precautionary principle” because waiting for complete scientific proof can delay action to the point where the damage will become irreversible. Secondly, send consistent and credible signals to industry (e.g. by adopting legally binding phase-out schedules) so that they have an incentive to develop new and cost-effective alternative technologies. Thirdly, ensure that improved scientific understanding can be incorporated quickly into decisions about the provisions of a treaty. Fourthly, promote universal participation by recognizing the “common but differentiated responsibility” of developing and developed countries and ensuring the necessary financial and technological support to developing countries. Fifthly, control measures should be based on an integrated assessment of science, economic, and technology.

After assessing the overall situation it can be said that in international movement for the protection of environment, the ozone layer as one of its issues has started. As Justice Blackman’s comments:

Unless the cost becomes prohibitive, saving time and money is not such a high priority in discovery that some additional burden cannot be tolerated in the interest of the international goodwill.²¹

Delay should not be the factor stopping the countries from implementing the outlines of the Protocol. The die hard spirit to implement should form the guidelines for every country as delay would mean the nearing of all end to life on earth if callousness is shown in its implementation.

VII. INDIA'S NOD TO THE MONTREAL PROTOCOL

Environmental concerns have been at the leading edge of a movement to reform the world and its means over the past thirty years. The criticism voiced by advocates and amplified through the world powers spurred environmental negotiators to take action that reduce and eliminate the production, use and emissions of ozone depleting substances as soon as technologically feasible. This led to the Vienna Convention of 1985 and the Montreal Protocol of 1987 which were held to assess and mitigate the adverse environmental impact of mankind's projects of industrialization. India being a party to the Montreal Protocol and being an Article 5 Country²² seeks to pursue the Montreal Protocol in every letter of its word.

However, the lack of vigilance in the formulation of a compact and combating legislation which should form a part of the integrated upstream strategy in relating to environmental affairs of the Montreal Protocol is not being seen with the microscopic vision. It has not featured legislation as a priority objective for improvement but has only evidenced the formulation of Ozone Depleting Substances Rules, 2000 marking the tortoise start of taking measures to control the use of ozone depleting substances (ODS).

The legislation invisible, India has prepared a base to kick start the changes in its economy. India prepared a detailed country programme to phase out ODS in accordance with its national industrial development strategy with the objective to phase out ODS without putting undue economic burden on both consumers and the industries.

VIII. ROLE OF INDIA IN EFFECTING THE IMPLEMENTATION

India's concerns and its unfolding of a wider perception have fuelled efforts evidenced in the funding of as many as 335 projects²³ in the

²¹ *Societe Nationale Industrielle Aerospatiale v. U.S. Distt Court*, 482 U.S. 522, 562 (1987).

²² Developing countries so called by the text of the Montreal Protocol.

²³ MOEF, *INDIA'S SUCCESS STORY* (as given by the Ozone cell) (India Habitat Centre, New Delhi).

consumption sector by the Multilateral Fund. In order to demonstrate its commitments along with credentials to supplement its stand, the Government of India has entrusted the work to the Ministry of Environment and forests that is bearing the torch and has set up the ozone cell as a National Unit to look after and render its necessary services. The Ministry has established an empowered Steering Committee which is supported by three Standing Committees:

- (1) Technology and Finance Standing Committee;
- (2) Standing Committee for small scale, tiny and unorganized industry;
- (3) Monitoring and Evaluation Committee.

These Committees review various policies and implementation options along with project approvals and project monitoring. A Project Management Unit (PMU) is also operational in the ozone cell for monitoring CFC production, phasing out and implementing other support activities to aid CFC production "phase out".

IX. THE ACTION

At the meeting of the Parties in Vienna on 7 December 1995, Elizabeth Dowdeswell²⁴ while hosting the Convention Secretariat stated:

"Governments must now maintain the momentum of Vienna by honoring their commitments to control ozone depleting chemicals and contribute financing. We cannot afford to rest on our laurels. The key is having the political will to prevent short term economic and social interests from undermining the long term need to protect the ozone layer."

These inspiring words encourage most of the countries to motion-start the reformation of their economies by implementing provisions of the Protocol. India though started with a whimper, nevertheless has made a start. Before the passing of its Rules 2000, it has identified its mission of first identifying, then preparation of the basic work by 1998, appraising its mission by December 1999 and finally unfolding the results by taking out the Rules 2000.

Following the spirit of the Montreal Protocol, India has assessed:

- ODS penetrates into all facets of daily life-refrigeration in homes, air-conditioners in cars, freezers in supermarkets and transportation, hairsprays, shaving creams, fire extinguishers, furniture, construction materials and so on.

²⁴ Executive Director of the UNEP.

- Sectors included: aerosol, commercial refrigeration, CFC production, foam, household refrigeration, halons production and mobile air-conditioning.

A. Milestones of ODS Phase-Out in India

The miracle chemicals as they were so called when invented were used in large scale in the developed countries since 1930's. India being a developing country had a slow momentum in deriving benefits from its use. The use of CFC's was initiated with its use in the refrigeration and the service industry. The start of steps of its use can be traced back to the 1960's. The other industries having the use of CFC's are halons, foams, aerosols etc have grown up into their youth only during the last 15 to 20 years. But as the use of CFC's in the indigenous industries mounted up, consumption has also increased manifold.

B. The Assessments

The use of ODS, as solvents has the maximum consumption both in terms of ODS (ozone depleting substances) as well as ODP (ozone depleting potential) terms. Refrigeration, air-conditioning and foam are second next large user sectors followed by aerosols. The switch over to non-ODS Technology has reduced to a large extent. The lesser use of ODS substances in MDI's is also not far behind.

(i) Service Sector Strategy

This strategy targets both organized and the unorganized service sector pointing towards the servicing needs of refrigerators and air-conditioners, prepared by ozone cell with the assistance from Germany, Switzerland, UNEP and UNDP. This strategy with the help of information gathered through the ODS Rules 2000 will provide for a detailed view of the players in the sector and sensitizing the service agencies to the issue of ozone depletion and providing support to them for cost effective phase-out of ODS. It will also help peek into the need for setting up the demonstration units for alternatives and providing assistance to training institutes to incorporate new technologies and methods of handling non ODS alternatives.

(ii) Chiller Sector Strategy

Like the service sector strategy, an in-depth survey of sample of chillers and collection of information on technical parameters, a draft report of the national strategy for phasing out ODS in chiller sector with the help of the World Bank has been prepared. Currently, the sequence of reforms is replicated from the context of the Montreal Protocol in India. With the help of

the World Bank and the Multilateral Fund which provides financing and services to the industrial sector entities, the environmental policies and procedures adopted follow suit in the identification of industries, their shift with the help of transfer of technology to non-ODS and through these channels making it a priority concern.

X. REGULATORY MEASURES

In order to integrate these considerations upstream into the economy, by laying down its agenda of for future course, India has brought out the Ozone Depleting Substances (Regulation and Control) Rules 2000. Certain measures were taken up before these Rules were framed, when India became a Party to this Protocol in 1992. In the same year a notification was made for the by the Chief Controller for imports and exports banning CFC imports form and exports to non-parties. The Rules provide for the followings.

- Regulation on production of ODS.
- Regulation on sale of ODS. Those industries which can sell ODS have to first get themselves registered.
- Regulation on reclamation and destruction of ODS.
- Regulation on manufacture, export, import of compressors.
- Banned trade of ODS with non-Parties.
- Banned export of ODS to non-Article 5 countries.
- Regulated the export and import of ODS with parties in accordance with the Rules and Regulations. The time limit, which has been set for its input and output, has been integrated in the Rules.
- Monitoring and reporting requirements.
- Changing the schedules according to the changing times by official notification in the Gazette.
- Units which have received assistance from any implementing agency like UNEP, UNIDO, World Bank or IDBI will not switch back to the old technology and use of ODS chemicals which either have been to more eco-friendly substances or which have been banned.
- The Director²⁵ convenes regular meeting with representatives of UNEP, IDBI and UNIDO with a view to note the progress of implementation and to sort out short-term problems which might occur during the implementation process.

²⁵ Ozone Cell, Ministry of Environment and Forests, India Habitat Centre, New Delhi.

- Quarterly site inspections of projects under implementation are carried out. Where projects have been completed ODS equipment is to be destroyed.

XI. FISCAL MEASURES

To ensure that Ozone depletion is a priority concern and to realign its structural support to the environmental reforms certain fiscal measures have been taken up. These are:

- To grant full exemption from payment of customs and excise duties on capital goods required for ODS phase out projects funded by the Multilateral Fund.
- It extends these benefits of duty exemptions for ODS phase out projects which are eligible for funding under the Multilateral Fund, whether or not such enterprises actually sought assistance from the Fund.
- It covers projects submitted for retroactive funding.
- The benefit is available subject to the condition that enterprises give clear commitments to stop using all ODS in future manufacturing operations after the projects are implemented.
- Duty exemptions are also extended:
 - (a) for new capacity with non-ODS technology, and
 - (b) for duty of Indian financial institutions not to finance/re-finance new ODS producing/consuming enterprises.
- The Tariff Advisory Committee (TAC), a statutory body under the Insurance Act, 1938 has decided to grant suitable discounts on fire insurance premiums, if alternative agents are used to replace halons in fire extinguishing systems.

XII. AWARENESS MEASURES

The concept of public participation²⁶ is that Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. Thus providing awareness about these issues is a parcel ineffective implementation of the provisions of the Protocol. The steps taken are:

- Awareness campaigns were conducted between April to August 2001 at the state level.
- Information dissemination package for school teachers and NGO's were distributed in four workshops organized in Calcutta,

²⁶ Rio Declaration, Principle 10.

Delhi, Pune and Chennai from Nov-Dec 1998. The kit was developed in consultation with UNEP-DTIE office in Paris.

- Report of meetings of the Parties and meetings of the Executive Committee are sent to industry, government departments and other stakeholders to inform them on a regular basis.
- Painting competitions organized by the ozone cell.
- A car sticker, a poster and a special day cover distributed every year on International Ozone Day.
- Ozone friendly equipment and products exhibited during ozone day celebrations.
- Workshops and seminars organized on regular basis for interaction with industry and government bodies.
- Quarterly newsletter Value Added Technical Information Service (VATIS) published and distributed in collaboration with United Nations Asia Pacific Centre for Technology Transfer.

XIII. FINANCIAL MECHANISM

After the strong international consensus over the protection of ozone layer, India has extended its hand for the strengthening of the consensus. The implementation process has now been put in the top gear. It is to phase out ODS both in end-use consumption sector and production sector. A grant program was established to phase-out ODS in India. Grant funds come from the Montreal Protocol Multilateral Fund. The Montreal Protocol Executive Committee (ExCom) appoints the World Bank as one of the three international implementing agencies to implement the ODS Program. India is the fourth largest CFC consumer and second largest CFC producer as of 1997.

A. India's ODS Program with the Aid of World Bank

The World Bank's aid is in line with the approval of the Executive Committee:

- ODS I: U.S.\$1.25 million grant compared completed two sub-projects of Chiller retrofits and compressor conversion.
- ODS II: got U.S\$ 50 million for an umbrella project consisting of 78 sub-projects in all sectors, totaling \$27.75 million in commitment as of 29th ExCom meeting in November 1999.
- ODS III:²⁷ got U.S. \$ 82 million total grant for phasing out CFC production sector over the period 1999-2010 has been approved

²⁷ Proposed CFC production sector gradual phase-out project.

by the ExCom. The first tranche of U.S. \$12 million approved for disbursement at the 29th ExCom meeting.

A project which is designed for a performance based grant for achievement of agreed CFC production phase-down over the period of 1999-2010. Of the \$80 million will be channeled to four CFC producers as compensation for foregone income, while \$ two million will be allocated for a TA program to implement through UN agencies. The World Bank has played a multifaceted role in India's phase out program.

B. Phase Out of ODS

Keeping in mind the principle of right to development²⁸ which lays emphasis that the right must be so fulfilled as to equitably meet developmental and environmental needs of the present and the future generations. The Ozone Depleting Substances Rules 2000 are framed keeping in mind that there should be development in synthesis with the principle that environment should be protected.

The Rules start the phase-out from 2003-2040. They prohibit the use of CFC's in manufacturing products beyond 1-1-2003 except in MDIs (metered dose inhalers) and for other medicinal purposes. The use of halons is prohibited after 1-1-2001, except for servicing and essential use. Other ODS such as carbon tetrachloride and methyl chloroform and CFC for MDI can be used upto 1-1-2010. The use of methyl bromide has been allowed upto 1-1-2015 Since HCFCs are used as interim substitute to replace CFC, these can be used upto 1-1-2040.

XIV. THE INSTRUMENTS LACK EFFECTIVENESS

Despite the Rules to mainstream the ODS awareness into its program, it suffers from a little credibility. Firstly in order to ensure prudence and legitimacy, legislation should have been the proper vehicle for enforcement of Rules. Secondly, to meet its commitment to mainstream the issues, it must ensure the objectives shape its policies and reforms, which the Rules advocate in our country, but it seems to be lacking. Thirdly, sources say that there is illegal trade of CFCs and may not after all help phase out ODS completely, and defeat the objective of implementing Rules. Fourthly, alongside the illegal trade there is also inflow of old equipment using ODS. Fifthly, checks are not effective enough to ensure that those receiving financial assistance don't switch back to the old equipment and use of ODS. Sixthly, for combating the corruption and illegal uses; legal forces are present but not effective enough. Seventhly the awareness does not reach the lowest rung of the hierarchy. The

²⁸ Rio Declaration, Principle 3.

awareness should reach all levels and specially the rung where people are not aware of the problem and its effects of use of ODS.

XIV. CONCLUSION

The identification of the issue ozone depletion has sharpened the world's efforts in perusal of the Vienna convention and the follow up action of the Montreal Protocol. India too has walked on the footsteps of the precedent countries by taking into its fold the provisions of the Montreal Protocol. Empowered to the Ministry of environment and Forests which has delegated the work to the ozone cell to look after the proper functioning of the provisions, the Government of India has drafted Rules 2000 under which it has taken up certain regulatory, fiscal and awareness measures to implement the Protocol. As a part of the curriculum of the Protocol, after the decision was taken, the Executive Committee of Montreal Protocol has appointed the World Bank, one of its implementing agencies to implement the ODS phase out program in India. After assessing the situation it can be said that work has been done but it is not sufficient enough. The work is plagued by a logical inconsistency underlying all orders for discovery at the starting stage. Fundamental considerations demand that the Government proceeds with caution in imposing the Rules which might not have reasonably been foreseen by the violator. It is imperative that assertiveness in the regulation of Rules or decisions coalesce into a body of precedent carrying its own force. As Sara Parkin²⁹ remarked:

“They saw it coming, but they did not have the will to stop it.”

So let the will to implement this not fall weak, but let us overhaul the destructive activities and try ending them. In other words, let it be the beginning of all harmful endings rather than end good beginnings by not properly implementing them.

²⁹ A Green Peace Party Worker in England.