

Ozone depletion Alert: Take Action

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May 15, 2007

“We are the Earth, through the plants and animals that nourish us. We are the rains and the oceans that flow through our veins. We are the breath of the forests of the land, and the plants of the sea ...Linked in a web of community, we are all interconnected.”

- David Suzuki, from “The Declaration of Interdependence”

1 Introduction

Following our natural tendency to interact with our environment and adapt to its constraints and limitations, and aiming at using its amazing resources, We, Human-Beings, have shaped our ecological systems so deeply that we have changed its appearance and threatened our own existence.

What kind of environment will our children inherit? Will the actions we may take today ensure a secure future environment? Will individual environment-friendly action contribute to the prevention of a large-scale disaster? How can we heal the destruction of the Earth protective blanket, the ozone layer? Are we willing to sacrifice technological luxuries and include serious changes in our everyday life for the sake of saving and protecting our environment and our planet?

As a mechanical engineering student at the American University of Beirut (AUB), I'll share my modest thoughts from where I stand. I had the opportunity to join a special course on “environmental challenges in managing ozone depleting substances” through which I was introduced to the serious issues and consequences lying behind global environmental issues, specifically the ozone

depletion problem and its serious consequences on mankind and biodiversity. This enlarged my perspective and increased my awareness of the real fact of ozone depletion and alerted me to the deep passiveness and the lack of initiative among individuals in our society.

2 Ozone Depletion Problem

The roots of ozone depletion emerge from our modern technological society but its hands of harm reach out to all that is living on Earth.

We live with the ozone layer everyday and most of us are unaware that this layer is the “Earth blanket”, protecting Life and ensuring its endurance. Likely, most of us are unaware that the ozone layer can harm Life on Earth and that our negligence and disrespect to our protector, holds the power of transforming it to an evil dragon. Consider for example one of the “top ten” inventions of the twentieth century along with computers and space flights: the refrigeration. Have you ever noticed the importance of refrigeration in your everyday life? Have you ever imagined your life without refrigerators, air-conditioners and heating systems? The refrigerant used in Your domestic or commercial refrigerators or in Your automobile air-conditioners may be contributing to the severe increase in skin cancer, the destruction of biodiversity and the extinction of different species.

In 1985, the ozone hole over the Antarctica was discovered, proving the prediction of Sherwood Rowland and Mario Molina that CFC (chlorofluorocarbon) refrigerants reach the high stratosphere and severely destroy the protective ozone layer[5]. Consequently, UV radiations, previously blocked,

are allowed to reach the Earth surface. Despite the existence of scientific controversy, research shows a strong correlation between skin cancer and UV-B increased exposure which is a direct implication of the ozone hole. Likewise, Immuno-suppression, eye cataracts and snowblindness are possible health risks associated with the thinning ozone layer[2].

3 The Montreal Protocol

Two years later, in 1987, the Montreal protocol which is one of the most effective environment protection agreements in the world, sets out a mandatory timetable for the phase out of ozone depleting substances (ODS) including CFC refrigerants. The montreal protocol, in terms of Kofi Annan, Secretary-General of the United Nations, is “perhaps the single most successful international agreement to date” and its ODS phase-out schedules are perhaps saving mankind from an impending catastrophe [4]. Replacing CFCs and halons in businesses and industries around the world has substantial financial implications. But the latter comes as a minor cost for preserving health, without which, no financial assets are of value. The governments of the world are working hard to make changes at a policy level, but once a large scale policy is imposed it awaits the concerned intervention of the individuals involved to implement on grounds what’s on paper[1].

4 Social passiveness and the lack of Initiative

Unfortunately, it seems that most people know about the existence of the ozone hole but lack the effective awareness and initiative of a helpful reaction. Hence, individuals are still not feeling the huge impact of the ozone depletion and they simply don’t care what life would be like in thirty or forty years from now. But how could a lack of awareness, a deep social passiveness and a multilateral successful protocol such as Montreal protocol co-exist? The answer is in the missing link connecting higher governmental and international efforts to each single citizen and individual.

There’s a broken cycle at the point of convincing the individuals to perform ozone-friendly actions.

5 Taking action

Almost everyone knows about the existence of “an ozone hole”. But people need more than “knowing about the existence of a problem”. From where I’m standing, as an undergraduate student seeking a way to convince my society to protect our environment, I realize that a person needs to feel the serious impact on his own life and he mostly needs a practical and relatively easy implementation. More specifically, people need to know how to translate the lesson they have been told, into action and direct practices.

As an example, consider the so called fear experiments conducted by the social psychologist Howard Levanthal in the 1960s [3]. Levanthal wanted to see if he could persuade a group of college seniors at Yale University to get a tetanus (a disease) vaccine. He divided them into two groups: one was given the “high fear” version of a booklet describing tetanus in dramatic terms and including horrible pictures, and the other was given the “low fear” version where the language describing the risks of tetanus was toned down, and the photographs were omitted. Levanthal wanted to see what impact the different booklets had on the student’s attitudes toward tetanus and their likelihood of getting a shot. Later, when were given a questionnaire, those who were given the high fear version were more convinced of the dangers of tetanus. But, however, one month after the experiments, almost none of the subjects - a mere 3 percent - had actually gone to the health centre to get inoculated. But, when Levanthal redid the experiment, including a map of the campus with the shot timetable and the health centre location specified, was indeed to tip the vaccination rate up to 28 percent. Thus, what the tetanus intervention needed in order to tip was not avalanche new or additional information. What it needed was a subtle but significant change in presentation. “The students needed to know how to fit the tetanus stuff into their lives; the addition of the times when the shots were available shifted

the booklet from an abstract lesson in medical risk - a lesson no different from countless other academic lessons they had received over their academic career - to a practical and personal piece of medical advice. And once the advice became practical and personal, it became memorable.”[3]

This case is known as “the stickiness factor” and it’s exactly the case when it comes to environmental problems, specifically, the ozone layer depletion. People need to shift the countless lessons and news they hear to practical and direct plans of actions. Considering the increasing stress and anxiety in our everyday life, we barely have time to cope with our “local” issues and problems and even though we know about the existence of a so-called ozone hole, we are not taking individual initiative to search and seek to solve this serious issue, nor we’re finding a way to incorporate the protection of ozone layer in our daily actions. Therefore, implementing a practical and direct plans of actions addressed to our busy and stressed society is indispensable.

What we need is to carefully notice and examine what we usually take for granted in our daily routine. When your car or your domestic air-conditioning systems aren’t working and cooling properly, you just go consult a technician who simply fills in a “gas” into that system. Herein, two major problems are of importance to our subject. First, being in a developing country, we must be aware that the phase-out of CFC hasn’t been completed yet and it’s still in use in several refrigeration systems. Hence, the gas we’re filling in our AC may be a severe ozone depleting substance. Second, the fact that my car or my domestic AC needs a gas refill is a sign of a potential leakage into the atmosphere and consequently, an alert of a hazardous effect on the ozone layer.

Although the Earth will be able to “heal” itself if the CFC level continues to stay as is, the depletion of the ozone layer is still a problem that society should be concerned with. These facts are rarely considered and noticed. And hence, arises the need for an alternative approach to raising public involvement and inducing initiative in defending the ozone layer. Such an approach can be through

increasing the number of contests and competitions that drive people to search, seek answers, and thus implicitly learn to apply their knowledge for the benefit of their environment. Therefore, in order for Earth to repair the damage humans have posed on the ozone layer, society must take an active role. Individuals should be motivated to combat the destruction of our protective blanket and provided with simple routines with which to fight their battle. As a simple action, one can simply check product labels making sure that they are “CFC-free”. One way to make people check their products is by increasing advertising that promotes such actions. For example, a famous actor or singer may show up on TV checking a spray label and making sure that the product is CFC-free.

“Everyone is abundantly using refrigerators” or “all people are enjoying air-conditioning systems, so it wouldn’t matter if I take any action”, and “what difference would I personally make if hundreds of millions of people are hurting the environment?”, all are collective thoughts that lead one to refrain from stepping into simple ozone-friendly initiatives. However, these thoughts are completely erroneous. Just like the well-known butterfly effect which refers to the idea that a butterfly’s wings might create tiny changes in the atmosphere that ultimately cause a tornado to appear somewhere else, each small individual action may build up and constitute a main component of Earth’s healing process. Therefore, despite their apparent tiny and insignificant local effect, individuals’ small actions may build up to structure the solution to a large scale global problem. According to the law of cause and effect, every action causes a reaction, which in turn causes another reaction and an infinite chain of actions and reactions extending beyond our control is initiated [1]. Applying this law, every positive action from you may initiate a series of infinite positive actions and every negative and harmful action of yours may build up to become a major contributor to our ozone layer destruction. “We can’t control the future, but we can control our own actions. And it is best for us, and for those who follow us, if we do no harm” and this is the power of living in communities and collectively sharing the responsibility of guarding Life. Quoting Margaret Mead, “Never doubt that a small group of thoughtful, committed citizens

can change the world. In fact, it is the only thing that ever has.”

Practical education remains the main direct path to youthful minds. By staying away from the intensive scientific theories, which may just be another academic lesson that one easily surpasses, and by providing direct personal advices and helpful instructions to be incorporated in daily routines, public awareness and corresponding initiatives increase.

Promoting scientific research must always be directed towards the benefit of Human Kind. Following Albert Einstein saying: “concern for man himself and his fate must always form the chief interest of all technical endeavors ... in order that the creations of our mind shall be a blessing and not a curse to mankind.”. We shall realize that a significant portion of our discoveries and inventions have adverse harmful side effects on Human kind. An example is the previously stated refrigeration invention which after being such a wonderful and practical bliss, turns out to be a long-term curse which was silently harming life. And thus, the aspects of our inventions should be considered on each level starting from the individual moving to the community and the universe as a whole.

6 Conclusion

Although ozone depletion may not directly affect the generation growing up today, future generations depend on the actions taken now. Thus, it is important for society to recognize that the thinning ozone layer is a problem and to take action in order to ensure the safety and survival of future generations [2].

“ We cannot feel any kind of serious obligation for something to which we feel no connection. If we do not see how we as individuals interact with and affect the ecological community of which we are part, we will not feel any sense of responsibility toward it. Without this sense of connection, we are likely to engage in irresponsible activities that could be harmful to the Earth.”[1]. Earth is a

complete, interdependent and interactive system; it is our larger body, if diseased we cease to exist. If we feel this picture, then, taking ozone friendly actions to preserve our larger body would be as personal as eating healthy food to shape our smaller body.

References

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