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Buddha's Way to protect Environment and to the Minimization of Global Warming

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INTRODUCTION

Unprecedented degradation of environmental pollution, natural disaster, ecological imbalance and fall out of ecosystem have been a dangerous threat to the living and non-living beings in our beloved planet earth. Rapid technological and industrial development, excessive emission of Carbon dioxide(CO2) and Carbon monoxide(CO) and other detrimental greenhouse gases in the atmosphere, profuse extraction of natural resources for human consumptions are almost responsible for the present day critical environmental crisis specially global warming due to global climate change in addition to the other related factors detrimental to overall natural environment affecting the whole humanity including all creatures.

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The overall global environmental crisis has reached to such an extent that it is not possible to completely reduce it to zero level but it may be possible to minimize it if there are joint efforts by the whole humanity. With this view in mind we shall try to present in this article scientific causes behind this acute problem, the role of UN and its related organizations or organs in tackling the situations and also the great teachings of the Buddha to reduce global warming and to protect the environment..

SOME USEFUL DEFINITIONS

Under the above perspective we must have some primary knowledge on few terms related to the problem such as environment, ecology, atmosphere, global warming, green house effect, etc.

Now what is **environment**? "Environment means physical and biological surroundings of an organism. The environment covers non-living (a-biotic) factors such as temperature, soil, atmosphere and radiation and also living (biotic) organisms such as plants, microorganisms and animals."[1]

Now what is **ecology?** "Ecology means biological study of relationships of organisms to their environment and to one another. The term was coined by Ernst Hackel in 1866. Generally ecologists study populations (groups of individual organisms), communities (different organisms sharing the same environment), or Ecosystems. Applied ecology is the practical management of natural resources and environment."[2]

Now what is **atmosphere**? "Atmosphere is the envelope of gases surrounding the Earth and shielding it from the harsh environment of space. The gases it contains are vital to life. About 95% by weight of Earth's atmosphere lies below 25Km (15 mi) altitude, the mixture of gases in the lower atmosphere is commonly called air. The atmosphere's composition by weight is nitrogen 78.09%, Oxygen 20.09%, Argon 0.93%, 0.03% of Carbon Dioxide, plus 0.05% of hydrogen, inert gases

1. Philip's Encyclopedia 2008, page 304
2. Philip's Encyclopedia 2008, page 291

and varying amounts of water vapor. This thin gaseous layer insulates the Earth from extreme temperatures; it keeps heat inside the atmosphere and it also blocks the earth from much of the Sun's incoming ultraviolet radiation. The force of gravity creates an atmospheric pressure."[3]

Now what is **global warming**? "Global warming is a trend towards higher average temperatures on earth's surface. During the last few million years, there have been several periods when surface temperatures have been significantly higher or lower than at present. During cold periods (ICE AGES), GLACIERS covered much of the land. The earth is currently in the middle of a warm period (inter- glacial), which began 10000 years ago. Since the 1960s, many scientists have called attention to signs that the Earth is becoming unnaturally warmer as the result of an increased Greenhouse effect caused by Human activity."[4]

Now what is **greenhouse effect**? It is the raised temperature at a planet's surface as a result of heat energy being trapped by gases in the atmosphere. As the sun's rays pass through the atmosphere, some heat is absorbed and reflected by closed cover but most of the short wave solar energy passes through and falls on the earth's surface. 30% of this energy is re-emitted from the ground as long wave radiation (lower frequencies of infrared thermal radiation), which cannot pass through certain gases in the atmosphere, most notably carbon dioxide resulting from burning fossil fuels, methane, chlorofluorocarbons(CFCs), water vapor, nitrous oxide, and ozone etc. It means the green house gases absorbs the longer wavelength radiation and re-radiate it back down to earth. The mechanism that produces the difference between the actual surface temperature and effective temperature is due to the atmosphere and this is known as the **' Greenhouse Effect'** because the gases act as the glass of greenhouse. In the solar system, the atmospheres of Venus, Mars and Titan also contain gases that cause greenhouse effects. On a global scale, scientists believe the greenhouse effect will raise the temperature of the earth, resulting in the melting of the polar ice-caps and subsequent sea level rise and flooding of low-lying areas. Since the beginning of the

3. Philip's Encyclopedia 2008, page 117
4. Philip's Encyclopedia 2008, page 355-356

Industrial Revolution (taken as the year 1750), the burning of fossil fuels and extensive clearing of native forests has contributed to a 40% increase in the atmospheric concentration of Carbon Dioxide, **from 280 to 392.6 parts-per-million(ppm) in 2012**. This increase has occurred despite the uptake of a large portion of the emissions by various natural "sinks" involved in the carbon cycle. Anthropogenic carbon dioxide emissions (i.e. emissions produced by human activities) come from combustion of carbon based fuels, principally wood, coal, oil and natural gas. Scientists in the Inter Governmental Panel on Climate Change (IPCC) estimate that the present patterns of carbon dioxide and methane emissions could lead to global warming on the scale of average surface temperature rise between 1.4 to 5.8 degree centigrade by 2100.

As we are concerned with the global warming we must have little knowledge about the **Earth's atmospheric levels.**

" **Formation of the atmosphere**: The Earth's atmosphere was formed by planetary degassing, a process in which gases like carbon dioxide, water vapor, sulfur dioxide and nitrogen were released from the interior of the Earth from volcanoes and other processes. Life forms on Earth have modified the composition of the atmosphere since their evolution.

Troposphere: The troposphere is the lowest region in the Earth's (or any planet's) atmosphere. On the Earth, it goes from ground (or water) level up to about 11 miles (17 kilometers) high. The weather and clouds occur in the troposphere. In the troposphere, the temperature generally decreases as altitude increases.

Tropopause: The tropopause is the boundary zone (or transition layer) between the troposphere and the stratosphere. The tropopause is characterized by little or no change in temperature altitude increases.

Stratosphere: The stratosphere is characterized by a slight temperature increase with altitude and the absence of clouds. The stratosphere extends between 11 to 31 miles (17 to 50 kilometers) above the Earth's surface. The earth's ozone layer is located in the stratosphere. Ozone, a form of oxygen, is crucial to our survival, this layer absorbs a lot of ultraviolet solar energy. Only the highest clouds

(cirrus, cirrostratus, and cirrocumulus) are in the lower stratosphere.

Mesosphere: The mesosphere is characterized by temperatures that quickly decrease as height increases. The mesosphere extends between 31 to 50 miles (50 to 80 kilometers) above the earth's surface.

Ionosphere: The ionosphere starts at about 43-50 miles (70-80 Km) high and continues for hundreds of miles (about 400 miles # 640 km). It contains many ions and free electrons (plasma). The ions are created when sunlight hits atoms and tears off some electrons. Aurorus occur in the ionosphere.

Exosphere: The exosphere is the outermost layer of the Earth's atmosphere. The exosphere goes from about 400 miles (640 km) high to about 800 miles (1,280 km). The lower boundary of the exosphere is called critical level of escape, where atmosphere pressure is very low(the gas atoms are very widely spread) and the temperature is very low.

Thermosphere: The thermosphere is a thermal classification of the atmosphere. In the thermosphere temperature increases with altitude. The thermosphere includes the exosphere and part of ionosphere.[5]

METHOD OF APPROACH

Our approach method in protecting the environment and to the minimization of global warming will be based on Buddha's discovery of four noble truths keeping in mind that environmental crisis or resulting problems are sufferings to the human beings. The Buddha discovered the four noble truths that:

a) There are sufferings
b) There are causes of sufferings
c) The sufferings can be remedied
d) There are means to get rid of sufferings

Sufferings due to environmental crisis or due to environmental pollution even resulting environmental health hazards may be categorized

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in the following way:[6]

1) Global climate change due to global warming
2) Depletion of forest resources
3) Biodiversity decline
4) Ozone layer hole expansion
5) The depletion of mineral resources
6) Waste increase
7) Over population
8) Marine pollution
9) The pollution of ocean water
10) Soil pollution
11) Desertification phenomenon
12) Arms race in war
13) Nuclear waste
14) Nuclear hazards
15) Ultra violet and infrared radiations
16) Earth quakes

Environmental hazard is the state of events which has the potential to threaten the surrounding natural environment and adversely affect people's health. This term incorporates topics like pollution and natural disasters such as storms and earthquakes. Hazards can be categorized in five types: a) Chemical; b) Physical; c) Mechanical; d) Biological ; e) Psychosocial.

The following are the examples: 1) Allergens; 2) Anthrax; 3) Antibiotic agents in animals destined for human consumption; 4) Arbovirus; 5) Arsenic-a contaminant of fresh water sources (water wells) 6) Asbestos-carcinogenic ; 7) Avian Influenza; 8)Bovine spongiform encephalopathy(BSE); 9) Carcinogens ; 10) Cholera; 11) Cosmic Rays; 12) dioxins; 13) Drought; 14) Dysentery; 15) Endocrine disruptors; 16) Epidemics; 17) E-waste; 18) Floods; 19) Food poisoning; 20) Fungicides; 21) Furans; 22) Haloalkanes ;

6. Prof. Dr. Bikiran Prasad Barua in article " The Buddhist Perspective in Overcoming Today's Environmental Challenges for a better tomorrow" published in " Kristi"- an organ of Bangladesh Bouddha Kristi Prachar Sangha., page 123,special issue on the Holy Kathina Cibara Dana 2557 Buddha Era, 16 November 2013. This article was presented in WFB Conference on Environment in Bangkok in 2013.

23) Herbicides; 24) Hormones in animals destined for human consumption; 25) Lead in paint; 26) Light pollution; 27) Lighting; 28)Lightning; 29) Marine debris; 30) Molds; 31) Mutagens; 32) Noise pollution; 33) Onchocerciasis (river blindness); 33)Pandemics; 34) Pathogens; 35) Pesticides; 36) pollen for allergic people; 37) polychlorinated biphenyls; 38) Quicksand; 39) Rabies ; 40) Radon and other natural sources of radioactivity; 41) Severe acute respiratory syndrome(SARS); 42) Sick building syndrome; 43) Tobacco smoking; 44)Toxic waste; 45) Ultra violet light; 46)Vibration; 47) Wild fire ; 48) X-rays etc.[7]

CAUSES OF SUFFERINGS:

We have mentioned earlier in the definitions of many useful terms how these sufferings arise. The global climate change due to global warming, environmental pollution, pollution of nature due to ultra violet radiation falling on earth's surface through holes in the ozone layer giving rise to health hazards are seen to be main causes of sufferings. In these causes global climate change due to global warming has been a great concern since 1960s. The world leaders and scientists have concerned themselves about this issue specially how to protect the environment in order to save the humanity from more serious disaster. Because of excessive green house gases emission specially CO2 and CO gases which are causing global warming are taken into serious consideration by world people concerned specially by the UN. The Buddhists of the world along with other religious people are also seriously concerned about it.

REMEDY OF SUFFERINGS:

There is a saying that 'save the nature, nature will save you'. All the above environmental problems, ecological imbalance, pollution of earth's atmosphere, global climate change due to global warming, environmental hazards etc. which are going to happen in this earth are man made because of extraction of excessive resources from nature for human consumptions through rapid industrialization and excessive emission of greenhouse

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gases in the atmosphere. As such human beings are to take steps to come forward for remedy of this disastrous situations. Not only any individual or any Buddhist or any individual religious person but also all the countries of the world as a whole will have to take initiatives and to vow as strong determination to protect environment and to the minimization of global warming. In addition to Buddhist response, UN response will be taken into consideration in this article.

MEANS TO GET RID OF SUFFERINGS ROLE OF UN

The United Nations is an international organization founded on 24 October 1945 after the Second World War by 51 countries committed to maintaining international peace and security, developing friendly relations among nations and promoting social progress, better living standards and human rights.

According to Charter, the Organization can take action on a wide range of issues and provide a forum for its present 193 member states to express their views through the General Assembly, the Security Council, the Economic and Social Council and other bodies and Committees.

The work of the UN reaches every corner of the globe. Although best known for its peace keeping, peace building, conflict prevention and humanitarian assistance, there are many other ways the UN and its system (specialized agencies, funds and programs) affect our lives and make the world a better place. The Organization works on a broad range of fundamental issues from sustainable development, environment and refugee protection, disaster relief, counter terrorism, disarmament and non-proliferation, in promoting democracy, human rights, gender equality and advancement of women, governance, economic and social development, and international health, clearing landmines, expanding food protection and more, in order to achieve its goals and coordinate efforts for a safer world for this and future generations.

During the 1960s and 1970s, a series of highly publicized climatic and environmental events, with disastrous consequences, demonstrated the fragility of World Food Production and trade system and their dependence

on Earth's climate system. In 1970s the UN Conference on Environment, Stockholm, 1972 which resulted in the establishment of UNEP (United Nations Environment Program); the UN World Food Conference, Rome, 1974, which recognized the central role of climate in the World Food Production; the UN World Water Conference in Mar Gel Plata, Argentina, 1976; the UN Conference on Desertification and the UN Economic and Social Council (ECOSOC) Resolution endorsing WMO (World Meteorological Organization) initiation of a World Climate Program that drew the attention to the global condition. **Each conference identified climate impacts as a central concern.**

In 1979, in response to these events WMO, UNEP, FAO, UNESCO and WHO convened the First World Climate Conference (FWCC) held on 12-23 February in Geneva. It was one of the first major international meetings on climate change. Essentially a scientific conference, it was attended by scientists from a wide range of disciplines. In addition to many plenary sessions the conference organized four working groups to look into climate data, the identification of climate topics, integrated impact studies, and research on climate variability and change. The conference led to the establishment of the World Climate Program (WCP) and the World Climate Research Program (WCRP). It also led to the creation of Intergovernmental Panel on Climate Change (IPCC) by WMO and UNEP in 1988. Astonishingly it may be mentioned here that it took nine years to set up IPCC on such a serious climate issue. IPCC is a scientific intergovernmental body set up at the request of member governments and later on endorsed by UN General Assembly through resolution 43/53. Its mission is to provide comprehensive scientific assessments of current scientific, technical and socio-economic information worldwide about the risk of climate change caused by human activity, its potential environmental and socio-economic consequences, and possible options for adapting to these consequences and mitigating to these effects.

The IPCC does not carry out its own original research, nor does it do the work of monitoring climate or related phenomena itself. A main activity of the IPCC is publishing special reports on topics relevant to the implementation of the United Nations Framework Convention on

Climate Change (UNFCCC), an international treaty that acknowledges the possibility of harmful climate change. Implementation of UNFCCC eventually led to the Kyoto Protocol in 1997. The objective of the treaty is to "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."

In the year 1990 Second World Climate Conference was convened in Geneva on 29 October to 7 November. The conference was sponsored by WMO, UNEP, UNESCO, the UNESCO Intergovernmental Oceanographic Commission (IOC), FAO and the International Council for Sciences (ICS) with the objectives to review the work of first decade of the WCP, the First Assessment Report of the IPCC, and the development of an International Geosphere and Biosphere Program (IGBP). The outcome of the conference, two years later, led to the establishment of the Global Climate Observing System (GCOS). It was an important step towards a global climate treaty and somewhat more political than the first conference.

In the year 1991 the first meeting of the Intergovernmental Negotiating Committee (INC) took place. In the year 1992 in Rio de Janeiro, Brazil, a summit was held from 3 June to 14 June. This is also known as the United Nations Conference on Environment and Development (UNCED), Rio Summit, Rio Conference, and Earth Summit. It was a major United Nations Conference. In this conference 172 governments participated, with 108 sending heads of state or governments. Some 2400 representatives of Non-Governmental Organizations (NGO) attended, with 17000 people at the parallel NGO "Global Forum", who had consultative status. This summit was held with goal of achieving international cooperation in protecting our plants, animals and natural resources. An important achievement was an agreement on the Climate Change Convention which in turn led to the Kyoto Protocol in 1997. With many other issues raised in this conference the declaration is known as Rio Declaration on Environment and Development. At the Earth Summit in Rio, the UNFCCC is opened for signature on 9 May 1992, after an INC produced the text of the Framework Convention as a report following its meeting in New York, USA from 30 April to 9 May along with its sister Rio Conventions, UNCBD United

Nations Conventions for Bio Diversity) and UNCCD (United Nations Convention to Combat Desertification).On June 12, 1992 154 Nations signed the UNFCCC. The international community has long recognized that desertification is a major economic, social and environmental problem of concern to many countries of the world.

In 1993 Rio de Janeiro eco conference was held and in 1994 UNFCCC enters into force on 21 March. As of May 2011 UNFCCC has 195 parties. In 1995 first **Conference of Parties** (COP) took place in Berlin The parties to the Convention have met annually from 1995 to assess progress in dealing with climate change. In 1996 the UNFCCC Secretariat is set up to support action under the convention. In December 1997 at COP3 Kyoto Protocol was formally adopted. In this protocol 192 parties signed. The US has not ratified the Kyoto Protocol. This protocol established legally binding obligations for developed countries to reduce their greenhouse gas emissions. As well as the Kyoto Protocol, parties to the convention have agreed to further commitments. These include the Bali Action Plan (2007), Copenhagen Accord (2009), Cancun Agreements (2010), and Durban Platform for Enhanced Action (2011).The 2010 Cancun agreements were drafted and accepted by the COP, at COP 16 and it states that future global warming should be limited to below 20 degree C(36 degree F) relative to the pre-industrial level. The protocol's first commitment period started in 2008 and ended in 2012. The second commitment period began on 1 January 2013 and will end in 2020.. The Durban Platform for Enhanced Action was drafted and accepted by the COP, COP17. In 2012, the Doha Amendment to the Kyoto Protocol is adopted by the CMP (Conference of the Parties serving as the meeting of the Parties) at CMP8. On November 11-22, 2013 COP was held in Warsaw, Poland. The 20th COP will take place in Peru in 2014. At Durban, and Doha, parties noted "with grave concern" that current efforts to hold global warming to below 2 to 1.5 degree C relative to the pre-industrial level appear inadequate[8].

So far we have discussed in short the role of UN in the reduction of global warming though there are lot of criticisms about the overall umbrella and processes of UNFCCC and the adopted Kyoto Protocol by

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some as not having achieved its stated goals of reducing the emission of Carbon dioxide (the primary culprit blamed for rising global temperatures in the 21st century). Canada formally withdrew from Kyoto Protocol in 2011. Both the US and Canada are looking at Voluntary Emission Reduction schemes that they can implement internally to curb carbon dioxide emissions outside of the Kyoto Protocol. This seems that **UN has failed** to reach the agreement amongst the member nations since 1979 with lot of efforts. It may be estimated here that reducing CO2 emissions by 100% below their present level (i.e., complete elimination) would lead to a slow decrease in the atmospheric concentration of CO2 by 40 parts-per –million (ppm) over the 21st century.

Why we are concerned with global climate change?

Global climate change is the most important factor which the earth is facing and is very crucial for the next generations. Ex UN Secretary General Kafi Annan once in his lecture on 'Threat to Environment' commented that climate change is threat to peace and global security, there is the danger level on a par with other armed conflict, arms trafficking or poverty.

Climate change could spawn more frequent El Ninos. The term El Nino refers to variations in temperature and air pressure in the tropical Pacific that affect worldwide weather patterns. El Nino effects are warm waters, jet stream, warmer waters, winter storms, wetter winters in south. Pacific warmest water moves eastward shifting locations of strongest thunderstorms to central pacific. Some of the worst El Ninos, the infamous climate patterns that shake up weather around the world, could double in frequency in upcoming decades due to global warming, says a new study out Sunday in the journal Nature Climate Change.

Global warming brings unexpected changes in the climate of the world. As a result it is observed that precipitation, cloudiness, soil moisture, melting glaciers, snow cover, rising sea levels, expanding deserts, shrinking forests, disappearing plants and animals, droughts, drinking water shortages, storms, cyclones, disaster, falling water tables, destruction of eco- systems, ecological change, increasing ocean acidification, acid rains, depletion of ozone layer,

expansion of ozone hole, fires, landslides, mudflows are the effects of climate change rather increase in average global temperatures.

If the earth's temperature rises from 1.4 degrees to 6.4 degrees, let us see what will be the consequences. **"National Geographic broadcasted a special documentary called " Six Degrees Could Change the World".**

The documentary explains that when the entire earth's temperature increases by **one degree**, Western United States would face severe droughts where most of it will turn into deserts.

When the earth's temperature increases by **two degrees**, Greenland's glaciers will melt fast. When the time comes. the sea level will rise up to seven meters. Some coastal cities including New York, London, Manhattan, Shanghai or Taipei will be entirely flooded.

When the earth's temperature increases by **three degrees**, after passing the critical point, humanity will have no power to control global warming. When the time comes, the summer heat wave in Paris will become a regular phenomenon. There will be no ice in the North Pole during summer. The Amazon Rainforest will gradually wither, and the drought may even cause rainforest fire.

When the earth's temperature increases by **four degrees**, **Bangladesh**, Egypt, and Venice would be flooded by the ocean. The world's largest rivers may dry up, jeopardizing the existence of millions to billions of people.

When the earth's temperature increases by **five degrees**, the North and South Temperature_Zones will be unsuitable for living. Water sources in Los Angeles, Mumbai, and Cairo will dry up. When that time comes, the member of the climate refugees around the world cannot be estimated.

When the earth's temperature increases by **six degrees**, many of the major cities will be lost to the rising seas. When that time comes, natural disasters will become a norm. When that day arrives, it is the so-called "end of the world". Humanity will probably follow the extinction of the dinosaur kingdom. From then on, human civilization

will no longer exist."[9]

When the above natural disaster predictions occur? When it will happen? Even the world's top scientists cannot be sure. However, British scientist Stephen Hawking is the first to provide sincere advice for humanity. He thinks that if humanity wants to continue to live in the future, they should abandon earth and start immigrating into space![10]

Venerable Dr. Thich Tam Duc says "According to UNDP, **Vietnam** is among the top 5 of the world's leading and most vulnerable to damage directly due to climate change: if the sea level rises one meter Vietnam would be taken off 5% of land, about 11% of the population will lose their homes, reduce agricultural output by 7% and 10% national income, nearly 50% of the agricultural land. Cuu Long River Delta would be submerged and no longer a cultivation land. Red River Delta and all the people living along the coast 3,200 km would be also greatly affected."[11]

"Vietnam Ministry of Natural Resources and Environment summarized for about ten years, Vietnam has suffered major impacts of climate change, as evidenced by the extreme weather phenomena: natural disasters occur continuously, in increase in strength, size and strength, causing great losses if life and property. In 2006 alone, the damage caused by storms in Vietnam is up to $ 1.2 billion. In particular, in the winter of 2007-2008 the cold weather lasting 38 days has killed more than 53000 cattle and harm about 34,000 hectares of transplanted spring rice, and tens of thousands of hectares of mountain-clad rice seeds in all the northern and North Central have been lost. Damage estimated at more than 11,600 billion VND, and over 723,900 times of households and 300,000 mouths fall into starvation. The bird flu, blue ear pig disease outbreak… has repeated and persisted in many

9. Most Venerable Master Hsing Yun in his book on Environmental and Spiritual Preservation, page 5-7, published by the BLIA World Headquarters on 2010, 09.

10. Most Venerable Master Hsing Yun in his book on Environmental and Spiritual Preservation, page 7, published by the BLIA World Headquarters on 2010, 09.

11. Venerable Dr. Thich Tam Duc, Vietnam in his article " Paticcasamppada and Environmental Preservation" published in ' The Buddha's Enlightenment for the Well-being of Humanity' on the occasion of the 9th International Buddhist Conference on the UNDV Celebration 31 May- 2 June 2555/2012, Thailand, page 58.

places."[12]

It may be mentioned from the above scenario that climate change is a cause but also an effect in the interaction between environment and humanity. So measures must be taken to remove the cause as **initiatives .taken by UN for 34 years but without any fruitful results**

So far we have tried to present the effects of global climate change due to global warming and steps taken by the UN to reduce CO2 emissions and its impact on the humanity. Now we shall try to present how the Buddha's teachings can be helpful and useful to protect environment and to the minimization of global warming.

Buddha's way

If any one goes through Buddhism and Buddha's life one will see how the Buddha loved the nature. His whole life is interconnected with surrounding nature. His discovery of dependent origination or the theory of cause and effect is clear example of dependence of human beings on their surrounding trees, plants, animals which has turned into ecology study. Not only Goutama the Buddha (the 28th Sammasambuddha) but also all other past 27 Sammasambuddhas also attained enlightenment under trees of various names.

Let me present the names of the trees beneath which the 27 Sammsambuddhas attained the enlightenment. These are known as trees of enlightenment: Tanhankaro Mahabiro (Rukkaththana); Medhankara Mahayaso (Kaela); Sarankaro Lokahito (Pulila); Dipankaro Jutindharo (Pipphala); Kondayanno Janapamokkho (Salakalyana); Mangala Purisasabo (a naga); Sumana Sumana Dhiro (a naga); Revata Rotibaddhano (a naga); Sobhita Gunasampanno (a naga); Anomadassi Januttamo (ajjuna); Padumo Lokapajjoto (salala); Narada Barasarathi (Sonaka); Padumuttara Sattasaro (salala); Sumedho Aggapuggalo (nipa); Sujato Sabbalokaggo (welu); Piyadassi Narasabo (kakudha); Atthadassi Karuniko (champa); Dhammadassi Tamonudo (bimbajala); Siddhattho Asamo Loke (kanihani); Tisso Barasambaro (asana); Pusso Baradasambuddho (amalaka); Bipassi ca Anupamo (patali); Sikhi

12. Ven Dr. Thich Tam Duc on the same article in page 58

Sabbahito Satta (patali); Bessabhu Sukhadayako (sala); Kakusandha Sattatbaho (airisa); Konagamana Rananjaho (udumbara); Kassapo Girisampanno (nigroda); Goutama Sakayapungabo (peepal).[13]

As I have mentioned earlier how much the 28th Sammasanbuddha Goutama the Buddha loved nature, The Buddha was a son of a King Suddodana. But birth of the Buddha (household name Siddhartha Goutama) took place at Lumbini Yard under Sala tree at Nepal border. The place was full of natural beauty in a free and clean atmosphere. This is an indication how much importance is given in Buddhism on nature and its protection. This is the last birth of the Buddha after four innumerable cycles of births, after 549 births as Bodhisattva and Siddhartha Goutama was a Bodhisatta in his 550th birth to be the future Buddha. So his birth in clean natural beauty of Lumbini Yard signifies a lot.

Before attaining Buddhahood, at a ploughing festival in a village accompanied by his father Suddodana, Prince Siddhartha sat under a Jamboo tree and got absorbed in a trance and meditated. Just before attaining the Buddhahood Goutama took milk-rice from a devoted lady Sujata under a banyan tree. This banyan tree was inhabited by birds, insects indicating ecological balance. Secondly, after leaving the palace buildings and pleasure, Prince Siddhartha started his meditation practice in deep forests, hills of nature and ultimately after a stupendous struggle of six strenuous years the ascetic Goutama became the self enlightened one (Sammsambuddha) in Uruvella forest (at present Bodhgaya) under the cool pleasant shade of peepal tree now known as Bodhi Tree (a tree of wisdom). One can clearly realize that the natural beauty of Uruvela Forest was a suitable place to be the Buddha, the Supreme being of the world. It was a place of tranquility, peaceful, natural and full of fresh air which has helped the Buddha to keep his body fit without any food for long 49 days. In the fifth week the Buddha sat for seven days under Ajapala Nyagroda tree. In the sixth week the Buddha sat under the Muchalinda tree for seven days. In the seventh week the Buddha passed seven days under Rajayatana tree. it is seen that trees are associated with the Buddha dominating in his life.

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The Buddha preached his first sermon " Dhammacakkapabartansutta" to his earlier colleages (later on known as panchabargiya disciples) in the Deer Park (Migadava) at Isipatana, a woodland. The Buddha spent most part of his lent seasons at Sravasti which is a beautiful site of natural beauty with trees, plants, birds. Kushinara is a place in India where the Buddha had the great grand passing away and that was Sala trees forest of Malla. It may also be mentioned here that while approaching Kushinara the Buddha stopped under the Mango Grove of Cunda. (Mahaparinibbana Sutta). Even the Physician Jibaka of the Buddha was a master of medicinal plants used for Buddha's treatment.

The Buddha's love for trees and forests testifies that how much importance the Buddha gave to them to save the nature. In other words we can perceive that the reverential perception towards trees .and plants can save the global crisis of environmental degradation

In Jataka stories (stories of the Buddha's past lives) there are many Jatakas where the Bodhisattva preferred as dwelling place. In Rukkhadhamma Jataka (No 74), Sala trees were the dwelling place for the Bodhisattva. In Mahavanija Jataka (No 221) banyon trees have mentioned as useful place for dwelling. In Bhaddasala Jataka (No 465) greatness of Sala trees has been highly praised by the Buddha. In Kalingabodhi Jataka (No 479) usefulness of mango trees has been elaborately described by the Buddha.[14] In Petavattu, verse no, 259 the Buddha on one occasion uttered that " It is treacherous to break the branches of a tree whose shade on sits or sleeps."

NOW THE QUESTION IS WHY SPECIAL IMPORTANCE IS GIVEN ON TREES AND PLANTS IN BUDDHISM?

In Botany tree is a perennial plant with elongated stem, or trunk, supporting leaves or branches. Trees play a significant role in reducing erosion and moderating the climate. They remove CO2 from the

14. Prof. Dr. Bela Bhattacharya in her article ' Buddhist Approach to Environmental Crisis' published in "Buddhist Approach on Environmental Crisis" – UNDV Conference Volume on the occasion of the UNDV Celebration 4-6 May 2552/2009, page 210

atmosphere and store large quantities of carbon in their tissues. Trees release Oxygen for living beings for breathing. Scientists believe that humans release about nine billion tons of carbon (Mostly Carbon dioxide) by burning fossil fuels and by changing the landscape. About four billion tons end up in the atmosphere and two billion tons dissolve in the ocean. The last three billion go to ecosystems on land, but exactly where these sinks are located remains open in question. Forests are considered one of the world's largest banks for all of the carbon emitted into the air through natural processes and human activities. They cover about 30% Earth's land surface, while accounting for 50% of plant productivity. As much as 45% of carbon stored on land is tied up in forests.[15]

Trees and forests provide a habitat for many species of many animals and plants. Tropical rain forests are of the most bio-diverse habitats in the world. The roots of a tree serve to anchor it to the ground and gather water and nutrients to transfer to all parts of the tree, and for reproduction defense, survival, energy storage and many other purposes. Trees stabilize the soil, prevent rapid run- off rain water, help prevent desertification, have a role in climate control and help in the maintenance of biodiversity and ecosystem balance. Trees have conservation value and add interest to the landscape. They can be planted as isolated specimens in hedgerows or as shelter belts. They provide shade for people and animals. They can be planted in grand avenues in parkland and alongside roads in town and country.

As such in Buddhist texts there are many tales about the usefulness of trees. If there are more and more trees and forests naturally CO2 from the atmosphere will be absorbed and as a result heat energy reflected from earth's surface will be able to go back into the space and there will not be global warming. If there is no global warming, there will be less climate change and environmental crisis will not be there. But in reality this a dream, because instead of increasing trees and forests human beings are squeezing the forests and trees for their enjoyment. Buddha's teachings of compassion towards trees, plants, forests, animals if practiced then we save the beloved earth from future disaster. But greed of human beings is growing to such an

15. Internet

extent that excessive extraction of resources from the nature has no other option except to increasing global warming leading devastating global climate Change.

HENCE FROM THE BUDDHIST POINT OF VIEW WE CAN CONCLUDE THAT:

a) Trees, plants, forests must be more and more from the present situation and as such plantation of trees and growing of forests must be taken as priority.

b) Greed of human beings be controlled so that there is no desertification and harmony of eco-system is jeopardized,

c) We must deal with trees, plants, animals, forests with great compassion as taught by the Buddha, being a cardinal Buddhist virtue extended to all sentient beings (including non-human) and even to non-sentient beings (including plants and rocks),[16]

d) We must have very good knowledge on the Buddha's theory of dependent origination i.e. for every cause there is effect or according to Newtonian Mechanics every action has equal and opposite reaction.[17]

e) Industrialized countries must take immediate steps in reducing CO2 emission to save the earth from further disaster. But UN various conferences and many steps since 1979 failed to reach an unanimous agreement among all member nations. This is a great shock and frustrating for all human beings to solve the human created crisis on environment.

16. Prof. Dr. Bikiran Prasad Barua in his article " Buddhist Approach to overcome Environmental Crisis" page 262-275 (in English version), 276- 289 (in Korean language version) on the occasion of WFB 3rd World Buddhist Business Forum from 11th to 16th June, B.E. 2556 [2012]

17. Prof. Dr. Bikiran Prasad Barua in his article on " Buddhism in the light of Science" page 185-189 published by Mahabodhi Society of India in " Buddhism's Contribution to the World Culture and Civilization edited by Dr. Ananda Guruge and Dr. D.C. Ahir on March 27-28 1977 Seminar held in New Delhi, India.